VOL. VIII No. 3

THE PHYSIOTHERAPY REVIEW

PUBLISHED BI-MONTHLY BY

THE AMERICAN PHYSIOTHERAPY ASSOCIATION

AUGUST - 1928

VOLUME VIII NUMBER 3

THE Physiotherapy Review

AUGUST—1928

PUBLISHED BI-MONTHLY BY THE AMERICAN PHYSIOTHERAPY ASSOCIATION

Publication Office; 404 N. Wesley Ave., Mount Morris, Ill.

Editor-in-Chief:
DOROTHEA M. BECK,
21 Church St., Montclair, N. J.

General Manager:
IRENE C. MEZEK,
7425 Harvard Avenue, Chicago, Ill.

Table of Contents

PAGE

TEAM WORK IN PHYSICAL THERAPY, *Harry E. Mock, M. D.* 2

EDUCATIONAL STANDARDS, *Lily H. Graham* 4

THE USE OF THE THERAPEUTIC POOL, *C. L. Lowman, M. D.*, AND SUSAN G. ROEN 8

PHYSIOTHERAPY AND THE SWIMMING POOL, *Alice L. Plastridge* 15

EDITORIALS 22

ORGANIZATION AND MANAGEMENT OF A HYDROTHERAPY CLINIC, *Rebekah B. Wright, M. D.* 25

GLEANINGS FROM A VISIT TO EUROPE, *Mathea Boxeth* 42

THE PHYSIOTHERAPIST'S BACKGROUND FOR THE TREATMENT OF PAINFUL SHOULDERS, *Lorena McPeek* 46

CORRELATION OF PHYSIOTHERAPY TO OCCUPATIONAL THERAPY, *Martha R. Emig* 50

Entered as second-class matter Oct. 6, 1927, at the post office at Mount Morris, Illinois, under the Act of Aug. 24, 1912

Membership in the American Physiotherapy Association is five dollars a year, including two dollar subscription for the Physiotherapy Review. Single copies 35 cents. Subscription for non-members to the Physiotherapy Review two dollars a year. Single copies 50 cents

TEAM WORK IN PHYSICAL THERAPY*

By HARRY E. MOCK, M. D.

The medical profession as a whole awakened to the value of physical therapy during the World War. It became one of the greatest adjuncts to medicine and surgery in fulfilling the nation's pledge of honor to the disabled soldier, viz.: the physical reconstruction and rehabilitation of the disabled soldier. I like to look back upon those days of idealism when we talked of: human conservation; the restoration of the disabled as far as was humanly possible; the physical restoration, the vocational education, the replacement at suitable employment and continued supervision—all of which was included under the expression seeking the economic end result.

Why, I became so enthusiastic over the work and its principles that I arose in the middle of the night, like a poet, and wrote down my thoughts. I called this literary effort "The Creed of the Disabled." It goes like this: "Once more to be useful; to see the pity in the eyes of my friends replaced by commendation; to work, produce, provide—seeking no favors and given none—a man among men in spite of these physical handicaps."

But was this great upheaval of the emotions during the war, this idealism over better medical, surgical and hospital care for the disabled soldiers, of any real lasting value? The answer is found in a few outstanding facts:

1. Note the children's clinics that have sprung up all over the land; the interest and activities of the Rotarians, the Elks, the Kiwanians and many others for the crippled children; the chain of Shriner hospitals that have been built to treat and restore as far as is humanly possible these disabled children.

2. Note the better medical and surgical care that is being rendered to the industrial employe—the disabled soldier from our great industrial army, the man who, before the World War, when injured too often, became the floatsam and jetsam of our civilization, the beggar or shoestring merchant on the street.

3. Note the enactment of federal and state rehabilitation acts which in a few states are functioning efficiently and to the end that the crippled adult be given "a chance, not charity."

4. Note the number of hospitals that have installed physical therapy departments and occupational departments, and, yes—social service departments, which are now working with the medical, surgical and nursing departments to the end that patients are being more nearly and truly cured than ever before.

---

*Talk given before the seventh annual convention of the A. P. A.

5. Note the new organizations which have sprung up since the war and which are educating the medical profession in a new line of endeavor: the various associations and colleges of physical therapy; the departments of physical therapy in several of our best medical schools; The American Association of Occupational Therapy; the Council on Physical Therapy of the A. M. A., of which I have the honor to be chairman.

6. And, finally, note this organization here assembled of young women engaged in the actual work, in the technical end, of giving physical therapy to our sick and disabled patients—this great and growing society of the American Physiotherapy Association.

If this emotional upheaval of the World War did no more than to give us this group of trained workers to act as team mates with the physician and surgeon in their efforts to restore the disabled, then that period of idealism was well worth while. That period from 1917 to early 1920 in the history of the medical profession and its allied groups can almost be compared to a great religious revival—and I wish to emphasize that many of the ideals of that period have become an actuality.

Physical therapy came to us from the realm of quackery during the war. We must guard carefully lest physical therapy leads many of our profession back into the realm of quackery. No group knows better than this group how easily the sick and injured can be fooled; how easily lights and diathermy or sinusoidal can be given to a patient when it can't be of real benefit to that given patient and its only value is to enhance the pocket book of the doctor.

No one recognizes the great ethical standards of this group better than I, so in speaking to you tonight on team work it is:

First—Teamwork in giving the patient the best possible treatment and the square deal.

Second—Team work to keep the standards of every doctor and every physical therapy worker with whom you come into contact ever aimed onward and upward toward the goal of human conservation.

EDUCATIONAL STANDARDS

By LILY H. GRAHAM

Round Table Discussion at the Seventh Annual Convention of the A. P. A.

The subject of the professional education of Physiotherapists is one of vital interest and importance to all who are in the profession. For too long any one who knew how to rub a little has been allowed to hang up his shingle and advertise himself as a Physiotherapist. The beauty parlor specialist, the man in the barber shop, and the rubber of athletes have styled themselves such until the name has come to mean very little. For this reason there seems to be more or less agitation throughout the country to find a name which can be applied to those of us using the profession in the field of medicine, and which cannot be used by every Tom, Dick and Harry who chooses to call himself by it. Many names have been advanced but none so far is just right. That of orthopedic aide was recently suggested but does not seem to be inclusive enough, as much of our work applies to medical cases as well as orthopedic. I have no better suggestion to offer at this time, but the question seems to be real enough and one of sufficient importance to consider in the national convention and perhaps some decision may be reached in the matter. Registration, when it comes, may perhaps solve the difficulty to a large extent. All of this has not been exactly in keeping with the topic under consideration, but when we realize that some of our universities in the country are either putting in or planning courses in Physiotherapy, the discussion of a proper name by which we shall be known does not seem entirely out of place.

The educational requirements of a Physiotherapist up to the present time have not been very definite and to those of us who are attempting as best we can to standardize them better, many suggestions have been made. We want our standards high and the day is fast coming when they will be, but the movement in the states is comparatively new and it takes time to accomplish all that is wished. The war brought into being almost a new field, for while a few were practicing Physiotherapy as it is practiced today, they were only a minority and the profession was not known in the world of medicine as it is at the present time. Turning out so many of us with short war courses as our basis was the only thing which could be done in the emergency, but I wonder sometimes if it has not held up, to some extent, the standardization of physiotherapy training, in giving people the idea that it all could be learned in a very short period of time. We knew then that our knowledge was very limited, but as we look back on the past ten years and think of all we have learned and realize that we are still only in the beginning, we recognize the necessity of schools requiring two and three and even four

years of education in order that the girls we train may not have to put up with the handicaps which faced us through lack of sufficient training. Physiotherapy must not come into disrepute with the medical profession because we turn out girls who are supposed to know and don't. There are still men who have tried Physiotherapy and have placarded it as "no good" for the simple reason that the aide they tried did not have sufficient training to make good. You may say this is equally true of the nursing profession, and that every one does not judge nurses as a whole by a few poor ones. That is true, but we must remember that we still have to prove our worth in many quarters and the more poor Physiotherapists attempting to hold positions the more difficult it is to overcome this prejudice. Registration and good schools meeting the requirements demanded by the national association are the two things which will help most.

It is absolutely necessary that we have registration and at the very earliest day possible if we can hope to put our profession out of the reach of quacks and those who call themselves Physiotherapists but do not meet the qualifications in any particular. Hasn't the day come when action can be taken to make registration a reality and not a dream of the future? Many people feel that physical education plus a short training in Physiotherapy is the only real basis for a Physiotherapist. There is no debating the question that the girl with this education stands on a firm foundation and yet I believe that we disqualify many of the best Physiotherapists we have in the profession if we limit ourselves to physical education as our only standard. It would make the situation difficult at the present time, for first we must arouse much more enthusiasm among physical education students for this branch of the work. It is hard enough at best to get the type of student we want. In the opinion of those of us who have watched closely the end result of the girls who have graduated from our school here, the nurse with good training as a foundation holds her place equally well with the physical education graduate. In the beginning of her physiotherapy training each has a decided advantage over the other in her particular field, but by the time her training is completed, both fields have been rounded into one and both girls are equally capable of holding a physiotherapy position with credit to themselves and the school which trained them. Many of our students have been nurses and are now holding positions of responsibility and are making good. Those who have either one of these foundations can complete their professional training in much less time than she who has had only her general education, but I must enter a plea in behalf of this type of student.

Three years ago a young woman applied to us for entrance in our classes. She had a high school education and had spent a few months in a doctor's office learning what he could teach her during busy hours. I could not give her a promise of anything less than

the year's course we were offering at that time to those without previous professional training. She proved to be so far ahead of the students in the eight months' class it was absolutely impossible and unfair to hold her for the extra four months, and she graduated with those in the shorter course. She now holds a good position, drawing a salary of nearly two hundred dollars a month, and is soon to be given two assistants. This of course is not true of every student and a careful selection should be made of those accepted for training. There can be no advantage gained in graduating people who will never be a credit to the profession and it is most unfair to the girl to let her complete her training when one knows she can never hold a position with satisfaction. As I see it, it is not a question so much as to whether or not a girl has had physical education or nurses' training as that the course is long enough and efficient enough to produce a competent Physiotherapist when her training is over. A few months of work can never do this and the time will be here in another year, I believe, for increasing the requirements to two years for those with previous training and three years for those without training. It is only through repetition that the practical work can be thoroughly learned.

The ideal school is one given by a university in connection with a school of medicine and with an affiliation with hospitals, both children's and adult, for case demonstration, observation of operations and practical experience in the care of cases. Until we have this combination we are going to feel more or less handicapped in our school work. I do not say that courses should be given only under these circumstances. That, I believe, is the ideal condition, but until such schools are possible throughout the country we will have to be content with the facilities we have available and do the best we can with them.

The work should include first of all a thorough course in anatomy, including bones, muscles, their origin, insertion and action, circulation and nerves, kinesiology, physiology, psychology, the pathology of orthopedic conditions, massage, muscle training, the principles of apparatus of all kinds, corrective exercises, electricity, heliotherapy, and the practical application of it all. It is not fair either to the student or the profession to train girls in only one branch of Physiotherapy and then expect them to hold positions where a knowledge of all the work is necessary. Some electrical companies have taught girls the use of electricity and have turned them out as Physiotherapists when they only knew something of electrical apparatus. So many schools leave muscle training out of their schedule and yet muscle balance is the basis of all work and its consideration absolutely essential in the treatment of paralysis cases especially. My plea is for an all round training and that such a training be required in every recognized school of Physiotherapy. The day is

fast approaching when medical schools and hospitals will demand that their students and internes have a certain knowledge of this work which means so much to every orthopedist.

There is another branch of therapy which has not been considered by the Physiotherapist as necessary in her education. That is a training in occupational therapy. The two therapies have always been separate branches of work and because of this fact the patient many times has been the one to suffer. Work is given which counteracts that prescribed by the other therapist and the end result obtained is far from all it should be. This situation will be hard to change unless we know both branches of the work, and we need schools which teach occupational and physiotherapy as one therapy, to be used in combination or separately as the need of the patient may demand. An intelligent prescription should be written but without knowledge this is impossible. The ideal supervisor should be in charge of all the work that is given the patient and to do this she must understand each branch equally well.

My attempt in writing this paper has been to face frankly the facts which show us our deficiencies and, realizing these deficiencies, to bring them to your attention as best I can. The educational standards of Physiotherapists have greatly changed for the better in the last few years but we are only in the beginning and the next ten or fifteen years will bring much that a short time ago seemed almost an absolute impossibility. With registration demanding graduation from schools with standardized courses and which require the highest efficiency from its students, Physiotherapy has a brilliant future and a tremendous opportunity and responsibility.

THE USE OF THE THERAPEUTIC POOL*

By C. L. LOWMAN, M. D., and SUSAN G. ROEN, Director of Physical Education, Orthopaedic Hospital School

In reviewing our experience of three years in the treatment of poliomyelitis by various physiotherapeutic modalities, we have found that the therapeutic pool or under-water gymnasium has added a great deal to our armamentarium.

We find that muscle re-education under water is not wholly replacing treatment of other types, notably the usual baking, massage and muscle training. The two, however, augment each other very definitely in relation to handling certain types of patients and the same patient at different times, according to the stage of the disease and his mental reaction to the re-education work.

The main feature in which this type of treatment has allowed a decided advance has been the treatment of cases in the acute stage. Under former methods of treatment, authorities have been pretty general in recommending that no treatment be given earlier than the tenth or twelfth week, or not until after the stage of muscle soreness is nearly passed. We have found it a matter of considerable interest that we gradually became bolder in putting patients into the pool, until finally, we put them in as early as the fifth or sixth week. Having had three weeks of quarantine before brought to us, we usually keep them another week in bed to decide upon the kidney involvement and general condition before beginning pool treatment. It has been notable, especially during the past year, that a very high percentage of cases have a moderate nephritis. These cases having come to us rather late in the year when the air has been colder than the water, we have not advised the use of the pool until the nephritis has cleared up in order to avoid chilling the skin, which makes the kidney condition worse. It has been especially notable that patients, even in the stage of acute muscle soreness, who became apprehensive and fearful upon attempts at active or passive motion in bed, relax sufficiently in warm water to be able to make two or three times the voluntary movement of a given part without pain. Consequently, we felt that we could allow such physiological activity with carefully controlled range and direction, avoiding all fatigue and no great amount of injury could be done. These patients have obtained remarkable results from early treatment.

We feel in approaching the matter from a physiological angle, that all motor efforts must nourish the whole chain ot tissues connected with motion, the body of the muscle tendons and the nerve tract, both peripheral and spinal which serves them. Not only must these parts be nourished, but there is a normal demand for elimination of their toxic products, induced especially by voluntary work.

*Read before the seventh annual convention of the A. P. A., Minneapolis, June, 1928.

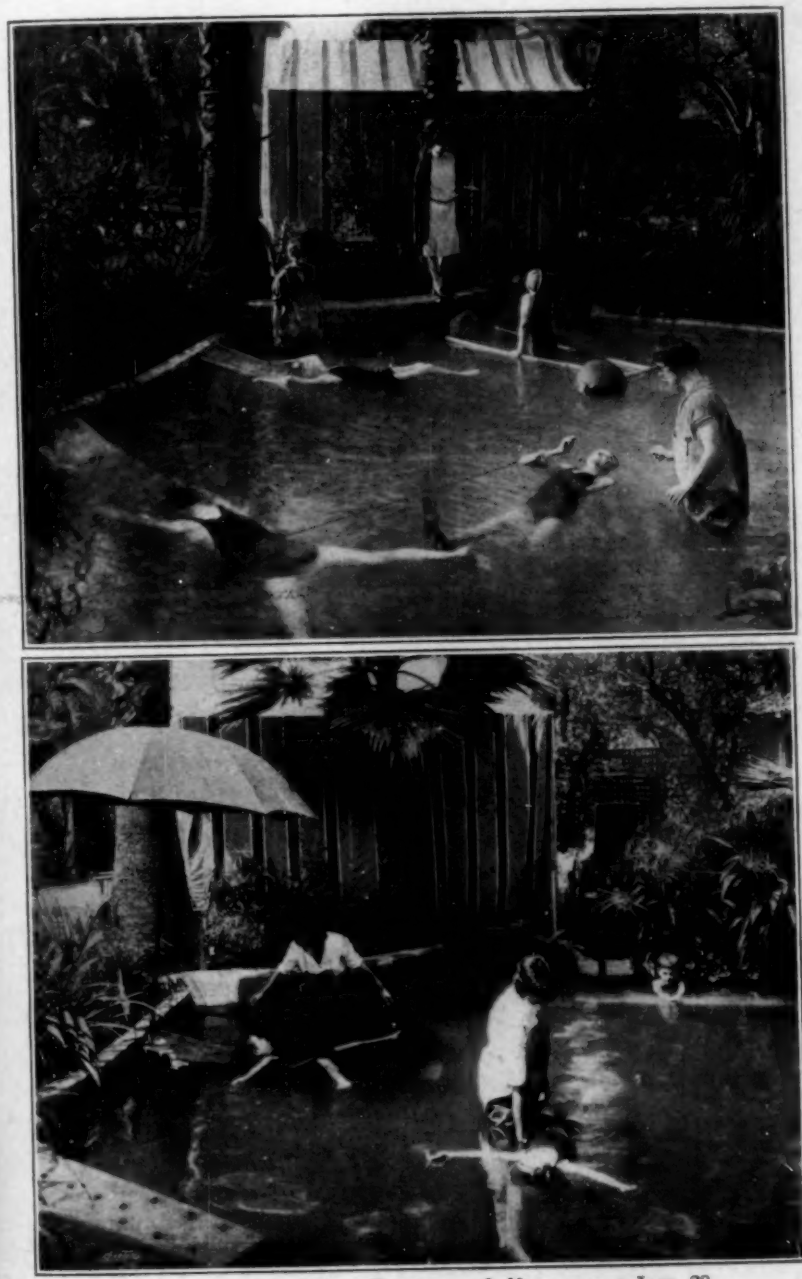
As under Wilm's treatment in septic joints, or in arthritis in which active movements are used within a painless range, there has been no ill effect observed. In fact, the relief in the warm pool, in which the temperature is 90 to 92°, has been appreciated by these patients. They have been able to obtain early movement; and at the same time establish a better psychological attitude and we have overcome the effects of weeks of fear and apprehension which always occurs during the acute stage of the disease. Taking advantage of this, by cautiously restricted voluntary movements, we feel there has been saved a certain amount of muscle and nerve tissue which otherwise might have atrophied and been lost. Keeping the channels of communication open between the central nervous system and the muscle has apparently been accomplished in cases where the degree of the original palsy has led us to feel that there would be very little come-back. The group of cases treated in this fashion compared with previous patients who did not begin muscle training and massage until the tenth or twelfth week seems to show that there has been a very marked benefit from this early treatment. All the patients have been followed closely by painstaking muscle checks done every four weeks by the same individual, following the method described in a previous publication. There was no absolute method of comparative check except by experience in cases similarly involved; i.e., both legs, or both legs and one arm, or both legs and the abdominal muscles, or many trunk muscles in which the original prognosis was quite grave; but we have obtained results far beyond our expectations.

In cases without complete paralysis, or in which there have been many scattered muscles showing anywhere from 10 per cent to 50 per cent loss, there has been a very satisfactory speeding up of the return power. We feel that many cases in which the degree of paralysis has not been particularly significant would constitute a group in which subsequent deformities, especially spinal curvatures, would have ensued had this moderate degree of partial palsy been overlooked and no care been taken in making an absolute check of the amount of loss in various muscle groups. These are cases that are making the most rapid recovery, because they do not have so much muscle soreness and have sufficient power left to obtain considerable function, particularly in the water where the gravity load is reduced to a minimum. The fact that these cases recovered so rapidly led us to presume that we could accomplish more from the effects of physiological activity in more severe types. This proved to be correct. We have come to believe that the second six weeks of the convalescence is the most vital time in the restoration of function. Not only do we feel that the voluntary action of peripheral muscles produces a nutritive and eliminative stimulus for the anterior horn cells, but it is logical to suppose that movements of the spinal column also directly affect the cord. We know that in all other

joints motion of the joint affects the circulation of blood and lymph in and about the joint, especially by the pressure exerted during motion from contraction and relaxation of the ligaments and muscles. This influence on the vertebral veins undoubtedly aids in draining the cord area and thus favors the absorption of the mass of inflammatory exudate that has been laid down in the cord.

Since the spinal muscle spasm is a protective spasm, it naturally limits all the factors of nutrition and elimination which are incident to motion, in direct ratio to the amount of limitation of motion. In painful joints, once the defense reaction to pain is set up, it becomes active not only to limit and decrease actual pain, but also to any anticipated pain and thus is greater than is really necessary. Therefore the purely psychic component of this reaction extends beyond the actual physical necessity. When placed in warm water these muscles relax and motion through a larger arc is allowed. When the child finds that he is no longer hurt by the movement, his confidence is obtained and the psychic element is reduced so that a greatly increased range of spinal and other movement is allowed; hence improved metabolism in the cord takes place. Undoubtedly, many motor cells in the anterior horn have not been destroyed but only merely injured, and succumb slowly to the gradual contraction and cicatrization of the inflammatory exudate surrounding them. Hence the hastening of the resorption of this exudate, we feel, saves cells that would otherwise be destroyed. The under-water method allows early motions that could not be finely enough graded otherwise, and can be accomplished within limits of safety.

The atrophy from disuse, added to early contracture from muscle imbalance, particularly where the extremity has not been controlled by splints, undoubtedly has added an increased burden to the muscles themselves, but the disuse atrophy from lack of function undoubtedly affects the spinal cord and nerve mechanism controlling the muscles. Apparently, keeping motor channels open, even by a minimal amount of use, has proven particularly beneficial. These early cases, especially the more severe types, are handled with extreme care in taking them in and out of the pool, being handled on stretchers so that the body is not changed from the position of physiological rest. The legs are supported on splints of wood, with a right-angle footpiece to hold them in proper position and also to assist in floating the parts. Never at any time is a weakened group allowed to be stretched. All the work is kept entirely within a limited range. Especially, are the arms never allowed to drop to the sides when the deltoid or scapular groups are involved. They are kept in position by use of a bandage around the wrist fastened across the shoulders to the opposite wrist, preventing adduction of the elbows. We have done this with very small children that can be lifted in the arms of technicians and carried into the pool, and in the older indi-



THESE PICTURES WERE TAKEN AT 9:30 A. M. ON JAN. 28.

viduals that are heavy, the method has proven satisfactory where the orderlies have to assist by sliding the stretchers from the side of the pool into the water.

The matter of transportation and handling of these cases, especially the older and heavier ones, is a very decided problem in that the element of back strain of technicians and orderlies has to be considered. In the equipment of our new physiotherapy building and the four pools which will then be in use, we are obviating all such danger by the installation of an overhead tramrail with an electrically operated hoist, such as is used in handling engine blocks. By having an extra number of stretcher frames fitting on the gurneys, four chains ending in hooks will drop from the hoist to the four corners of the stretcher and this will be handled by the electrically driven hoist. Patients can thus be conveyed along the corridors to the dressing rooms and from these into the pools, being lowered into the pool mechanically.

Since the institution of pool treatment, one of the marked elements of improvement is the ability to use certain types of exercises which cannot be used on the table, because of the restriction to movement in certain planes. This is particularly noticeable in all movements for the re-establishment of function of the trunk muscles. The exercise of trunk rolling, that is, turning the body over and over in the water, is such an exercise. It is particularly beneficial where spinal and abdominal muscles are involved and is far easier than attempting to do rolling movements on the table. During the latter, all the weight of the body must be lifted up and over one side, whereas in the water the body turns on a central axis, thus demanding symmetrical tension on all trunk muscles. On the table, the exercise must be asymmetrical.

Another very valuable exercise for trunk movement is lateral bending from the waist, called by the technician "the mermaid movement"—legs and thighs being held firmly together, the upper body being fixed by the patient grasping the rings on the sides of the submerged plinth and making the side body movements. This can also be accomplished with a slight twisting movement at the same time. There is another exercise with the patient lying on the side, similarly making anterio-posterior movements from the waist down. This becomes more than mere hip flexion, for it brings the trunk muscles into action as well. It is particularly beneficial for the abdominals and lower erector spinal muscles. In this same position, the so-called "bicycle exercise" with a very forcible push-down is used for weak quadriceps and gluteals, the weight of the legs being carried in the water, making it possible for them to have freedom of movement impossible to obtain on a table. This bicycle movement can be done both in prone and supine position. All circumduction movements of the arms and legs can be done against the slight resist-

ance of the water, without passive help, except where muscles are extremely weak. When the technician guides the leg or the arm through a movement of this kind, she can control the force of the movement accomplished by the weak group and restrain the movements in the overacting group.

It is notable that during these exercises the soreness wears off much more rapidly than it does during the ordinary course of regular exercise work, in the early stages. In fact, we formerly had to wait for the subsidence of most of the muscle pain before exercising. We now can begin these courses of exercises within limits and accomplish a great deal during the time that the muscle pain is subsiding. Probably the greatest advantage is that, whereas early efforts at movement by previous methods had developed some inhibitory tendencies or a fear complex, in these cases, treated early in the warm pool, this situation is notably reduced or absent. The warmth of the water produces a sense of relaxation and comfort and there seems to be also a natural instinctive stimulation to movement, which any of us recognize as soon as we enter water. Whether or not this is from a natural self-preservation instinct, or from a pleasurable sensation, we do not know. The fear of movement, however, we do know is greatly lessened and soon overcome, so that in five or six treatments in the water, the patient has established sufficient confidence to go ahead and attain a much greater range of movement than we have ever found possible by other methods.

I should like to re-emphasize the necessity of considering exercises under water from the standpoint of therapeutic movement and not from the standpoint of swimming. We are hearing continuously of swimming instructors in regular pools taking poliomyelitis cases into pools where the water is cool or even cold, and teaching them to swim. It is perfectly evident that swimming movements in the natural head-forward progression necessitates the use of the pectorals and shoulder and arm adductors. Likewise, the flexors and notably the adductor groups in the legs are also developed, whereas the chief thing we should strive to get for stabilization of the trunk on the legs is strong gluteals and extensors and adductors. Only in the presence of affected and weak adductors should the adduction movement be used. In those with arms affected, there is no more beneficial method of treatment than this modality, but it may be greatly abused because of ignorance. In swimming, strokes which develop the opponents of the deltoid ultimately weaken the shoulder positions. The stroke of the arm should be upward, slightly bending the elbows in drawing them back to position; never to a position, however, completely to the side, but back to about 45 degrees of abduction.

We also find untrained teachers making spinal curvatures worse by not appreciating the relations of the trunk fixing muscles in con-

trolling the leg position. Where the quadratus lumborum and abdominals are weak, the effort at hip raising or rolling movements, which these badly stricken patients are given in the water, are very likely to increase the lumbar curve very decidedly. This, coupled also with faulty arm and shoulder work, can actively increase the curvature when it is least suspected.

Our conclusion from three years of pool work in the treatment of poliomyelitis is that it is highly beneficial and also that it may be disastrous in the hands of untrained workers or even misused in the hands of trained workers who do not carefully analyze the muscle involvement in each particular patient.

2417 South Hope St., Los Angeles, Calif.

PHYSIOTHERAPY AND THE SWIMMING POOL*

By ALICE L. PLASTRIDGE

We have been seeing and hearing a great deal lately about the treatment of various deforming illnesses by the use of warm water, in small tanks or swimming pools. In connection with this type of work, several questions come up for consideration:

1. Is this warm water treatment of any particular value?
2. Is it a feasible method of treatment?
3. Is it a substitute for, or an accessory to, the usual methods of Physiotherapy?
4. Can any swimming instructor or gymnasium instructor follow out treatment or does it need special training by an expert Physiotherapist?

For these few moments I would like to confine my remarks to the use of the swimming pool for the after-care of anterior poliomyelitis, although much can be said of its efficiency in cases of fractures, spastic paralysis, congenital dislocation of the hip, hemiplegia, certain types of neurotic conditions, some forms of scoliosis and like disabilities.

For a great many years "summer swimming" has been advocated by some of our leading physicians, especially for the severer types of polio (I am speaking now particularly of cases of longer standing); partly because of the psychological effects due to the ease with which these patients can propel themselves in water compared with the difficulty they have outside; partly because of the exercise which they are supposed to get for their weakened muscles; and partly for the increased circulation due to the warmth of the water, and to the friction of the water on the limbs and body as they move about.

As we analyze the work now, we feel that the first reason—the psychological one—is by far the most important. It gives one quite a thrill to see a young adult, who has been so badly affected that he, even after several years of the most efficient care and supervision, is still confined to a wheel chair and bed (because his shoulders and arms were too weak to allow him to use crutches for walking, and his body muscles were too weak to permit him to walk without them), when taught to float in a small swimming pool, suddenly begin to propel himself very slowly, just by a small amount of flexion and extension of his wrists and the slightest bit of hip flexion and a little wriggling of the body—really the only muscles he has which have power enough to show as motion! And the look of joy on his face when he finds he can get from one place to another, without help,

*Read before the National Convention of the American Physiotherapy Association, June 12, 1928, at Minneapolis, Minn.

is worth a good many months of patient work in getting him started.

To be sure we would not find another case as bad as this one, in several hundred, but the same psychological effect holds true with the moderately paralyzed and the slightly paralyzed. To see a little girl of eight who cannot stand alone without two long braces, a corset and crutches, walk slowly across the tank, standing perfectly erect, with no apparatus and no assistance save that of her arms on the surface of the water, convinces her as well as yourself, that there is something in this water treatment. And although she cannot do any more in her table exercises the next day, still she knows that she has enough power somewhere to enable her to do in the water what she cannot do outside. Her interest is re-awakened, her ambition is increased ten-fold, and if tank work is promised her, once a week, as a reward for doing her best, she will work like a young Trojan all the intervening days and get a great deal more out of her regular exercises than she otherwise would. In these long-drawn-out cases, children, especially, go stale on their work after a while so that when something like this is found which will stimulate their interest, even a little, it certainly is worth taking under consideration. As a rule, the youngsters love the water and it is sometimes all your life is worth to get them out of the pool when their work is done!

The second reason—that of exercise for the weakened muscles—we can almost put into the discard because there probably never was a person who could swim by using the weak muscles and keeping the strong ones quiet! No! it just does not work that way! Patients are always so eager to get ahead that they use whatever part of their bodies is strongest—regardless of their position or condition and as a result, the already weak parts are made weaker by over-stretching and fatigue and very little, if any, constructive muscle action has been gained. So that swimming, as swimming, cannot be relied upon to increase the function of the affected muscles.

The third reason, like the first, is of real value. The warmth of the water (preferably between 85 and 90 degrees) increases the circulation and minimizes that cold, blue, mottled appearance which we so often see. Then as the body moves through the water the friction created by it acts as a gentle massage and helps to improve the general muscle tone. When the body is quietly resting in the water the muscles relax and the patient finds real enjoyment and benefit.

Immersion in warm water, especially warm salt water, even in the bathtub at home, is often one of the first orders given by the physician after the first week or two of the acute stage of infantile paralysis. Just lying in this warm water for from five to ten minutes every day helps to relieve the soreness and stiffness more quickly than any other method we know of at present. This can be done

long before massage or muscle re-education are indicated and usually reduces this period of "watchful waiting" considerably. Very often the actual muscle training is started in the salt bath.

So I think we can safely say that warm water treatment (but not actual swimming) is of great value in the treatment of poliomyelitis cases.

Now, as to its feasibility: Warm water treatment has become a feasible method of treatment. From the use of the bathtub during and following this acute stage the patient can progress to a small round wooden tank similar to water tanks which we see on the roofs of so many buildings. The most practical size for average home use (if one can be set up in a basement or laundry room) is one about six feet in diameter and four to five feet deep according to the size of the patient. With hot and cold water connections and good drainage these wooden tanks are very satisfactory and not very expensive. Our experimental work at North Western Dispensary and in the Chicago Schools for Crippled Children was done in tanks of this size. As the new schools are being built, provision is being made for larger, better equipped, concrete tanks where more efficient work can be done. Many Hospitals for Crippled Children are putting them in. Better still is the large out-of-doors pool fed by a natural, warm spring. But more of this later.

Is water treatment a substitute for, or an accessory to, the usual methods of muscle re-education? I have never felt that it was a substitute, for although movement under water is always far easier than on a table, it can never be done quite as accurately—and accuracy of motion is one of the keynotes in all forms of exercise. But for weak trunk muscles, either back or abdominal and for the larger shoulder and arm movements, the water has more advantages than the table. The buoyancy of the water, and the lightness of the body when the force of gravity is eliminated, makes a great many trunk motions easy and efficient under water which are hardly possible on a table.

It seems to me that the most ideal arrangement would be to have a combination of the two methods—the use of the table for the muscle groups which need such careful localization and concentration and the warm water for the larger motions which can be done so much more readily under water.

Can any swimming or gymnasium instructor follow out the treatment or does it need an expert Physiotherapist? It has been my experience that only specially trained Physiotherapists can carry on this re-education work really efficiently even in water. Most gymnasium and swimming instructors are accustomed to work only with normal people and they do not know how to handle the handicapped person; besides, they do not know the proper dosage because they have no conception of the lack of endurance of the paralyzed

muscles. Recently I had occasion to watch an excellent gymnasium teacher give exercises to a child who was only moderately paralyzed. The exercises had been prescribed by a Physiotherapist under orthopedic supervision and the routine number of ten counts had been advised for each exercise. The instructor went through the motions properly if somewhat awkwardly, but when a certain muscle began to weaken from fatigue after the seventh count, instead of giving more assistance or stopping the exercise altogether, she went right on urging greater activity and even going on to twelve counts because the last two had not been done as well as the first! That is good psychology for normal people but not for our crippled children for a great deal of harm can be done by over-fatiguing the muscle in this manner.

Then again, gymnasium and swimming instructors do not know their muscle anatomy well enough to have this type of case entrusted to their care without further training. Most of them when dealing with a handicapped child go blindly into the work, going on the supposition that the thing the child cannot do as a normal child should do it is the thing that he must be made to do. That is correct as far as it goes, but conscientious as she may be, she cannot know the "whys" and "wherefores," cannot isolate the affected groups of muscles and give them work graded according to their strength and then gradually increase the severity of the exercises as the muscles can stand it.

That type of work may go a long way toward helping the child to get about more readily and be more independent, but think how much further the child might go in the same length of time if a skilled worker were in charge.

Just as in table work, exercises given under water must be done with the greatest accuracy and with a very definite purpose in view in order to make them of real value.

A few minutes ago, I mentioned a most ideal condition under which warm water exercises can be given and that is, in a large out-of-doors concrete pool which is fed by a spring of natural warm water. And for the time that is left I would like to describe, if I may, the work that has been started within the last two years down in Warm Springs, Ga.

The town of Warm Springs is so tiny that it hardly shows on the map but it is situated seventy miles southwest of Atlanta and is on the direct railroad line and highway between Atlanta and Columbus. It is way up in the mountains, 1,200 feet high, and in a veritable forest of pine and oak trees. A mile from the village there is an old southern resort which has been popular for about a hundred years for summer people who wished to get away from the heat of the cities and have access to a splendid, big, out-of-doors swimming pool. This pool is fed by a natural warm spring whose

temperature ranges from eighty-eight to ninety degrees all the year around. Only a small part of the spring has been tapped but it is estimated that its flow would be sufficient to supply the daily needs of a city of 50,000 people. The spring itself has no curative properties and is of no medicinal value but it is the softest, clearest, most glorious feeling water that I was ever in! And to my great surprise I discovered that it was not enervating. I could stand around almost shoulder deep, watching the work, or float about from place to place from two to two and one half hours and come out feeling like a king!

About three years ago Mr. Franklin Roosevelt, who was assistant Secretary of the Navy during the war, and who since 1921 has been severely paralyzed from his waist down, from a bad attack of infantile paralysis, learned of this place, became interested in its possibilities, not only for himself but for other handicapped people; bought the property, and, under good medical and orthopedic supervision, is doing some valuable experimental work there. He has remodelled the hotel and the surrounding cottages, making some of them available for light housekeeping where parents can care for their children themselves; others have been arranged so that from four to six children or adults, unaccompanied by parents or nurses, can be housed (each in a separate room) in what is known as the "colony."

About half a mile down the hill from the "colony," near the original pool, a second pool has been built for the exclusive use of the patients—the original one being used by the guests at the hotel.

This pool is U-shaped. Each of the two long sides of the U are 70 feet long by 35 feet wide, one being known as the "work pool" and the other as the "play pool." The water in these pools is from 4 to 4½ feet deep. The "work pool" is equipped with six or seven wooden tables 3x6 feet, which are fastened to the floor of the pool. Each table is of a little different height so that no matter what the size of the patient he can lie or sit on the table, immersed to his neck, if necessary, in order that the arm or the leg which is being worked upon can be completely submerged.

Each patient is taken individually by a member of the staff, working either on the table or at the bars which are fastened a few inches below the surface of the water, at intervals, all around the sides of the pool. When the exercises are completed, if the patient has not become fatigued, or unless he has been forbidden to do so, he is allowed to float on a rubber ring, or swim, in the way which has been taught him, to best suit his individual needs, around the base of the U, into the "play pool," for a certain number of minutes of relaxation or fun. No table work is being given at all because they have been asked to confine all their efforts to water treatment to see just how much they can accomplish with it.

Every minute of the day is carefully planned for each individual and the schedule is carried through regularly.

Breakfast is served in the main dining room in the hotel or in a special room below from 8 to 8:30. At 9 the attendants carry the patients to the busses and they are taken to the pool. From then until 10 they have their sun baths out under the glorious Georgia sun. The newer patients are given small doses, which are gradually increased. The girls and boys have their cots on different sides of the building so that they can be stripped for these sun baths. From 10 to 12 the patients are taken into the pool, in turn, for their exercises; then dressed and taken back to the colony. Dinner is served from 12:30 to 1. From 1 to 3 is "rest period" and it is rigidly enforced. Each person is in his own bed and no one else is allowed to talk to him or go into his room during that time. From 3 to 4 is a recreational hour. They may sew, read, write, play cards, go for a drive, practice musical instruments or anything they wish, except walk. From 4 to 5 those who have difficulty in walking are taken, in turn, and taught proper methods of navigating. Part of this is done between parallel bars without crutches, some on the ramps between the cottages with crutches or canes as the necessity may be—but each has individual instruction on his or her particular problem. From then until supper time is recreational and in the evenings also. About twice a week they give a concert at the hotel, some of the patients participating. They have recently started groups in craft work and in sewing to keep idle hands busy, and school work during the winter months so that the educational side will not be neglected.

The management is planning to build another pool which will be enclosed and can be used on the coldest days in winter and on stormy days throughout the year. This will make Warm Springs practicable all the year, which it has not been up to now.

So you see this project is still in its infancy but it has grown surprisingly fast, for there are over sixty patients under treatment now and the staff has been increased to ten, including Dr. Le Roy Hubbard, the orthopedic surgeon in charge, and Miss Helena T. Mahony, a graduate nurse and trained Physiotherapist.

Warm Springs Foundation, as it is called, is not in any way institutionalized. It is not a hospital or a sanitarium, but is simply a place where handicapped people can go and live a rational life unhampered by the necessity for keeping up with, and out of the way of, normal people, with whom they cannot compete in the mad rush of life; yet where they can have pleasures and opportunities for fun which are denied to many of them in their own homes. But above all, they are under expert, skilled care and supervision during the entire twenty-four hours.

The spirit of the place is quite remarkable considering the

differences in ages, disabilities, education, tastes and temperaments. The undisciplined are taught to obey, the diffident and shy are shown that they have just as much of a "place in the sun" as their more aggressive neighbors. In other words, the community spirit is 100 per cent.

Because it is not institutionalized there are not the facilities for caring for the acute cases of polio, but it is a most ideal place to send a patient a few months after the onset and especially good for the chronic cases. It has become a very popular spot during the vacation months.

The majority of the patients, representing many different states, have been advised to go down there by their home physician or orthopedic specialist, because he felt that it would relieve the monotony of the winter's routine, give them renewed interest and courage because of the change of people and scenery, and because he knew that there would be no cessation in their work although it would be of a different type, and that his instructions would be followed out to the letter by Dr. Hubbard and his staff.

In looking back over my two interesting and instructive trips to Warm Springs, there are two things which stand out in my mind as significant: first, the constant supervision which the patients are given and the individual interest shown in each one; and, secondly, the accuracy of the work—because the staff members get into the pool with the patients, where they can hold them and guide their motions and know by feeling whether or not they are using the wrong or the right muscles.

The work, so far, has been very successful and some really remarkable results have been obtained.

OFFICERS AND EXECUTIVE COMMITTEE OF THE AMERICAN PHYSIOTHERAPY ASSOCIATION, 1928-29

President

HAZEL E. FURSCOTT.....Fitzhugh Building, San Francisco, Calif.

Vice-Presidents

BEULAH RADER.....U. S. Marine Hospital 19, San Francisco, Calif.
SARA E. KOLLMAN.....Gillette State Hospital, St. Paul, Minn.

Secretary

CHARLOTTE H. BALLARD.....
.....Saint Francis Hospital, Bush and Hyde Sts., San Francisco, California

Treasurer

FLORENCE C. BURRELL.....230 Grand Ave., Oakland, Calif.

Members-at-large

WINEFRED TOUGAS.....886 Sutter St., San Francisco, Calif.
HELEN KAISER.....1817 East 87th St., Cleveland, Ohio

Advisory Committee

HARRY E. MOCK, M. D.....122 South Michigan Ave., Chicago, Ill.
ARTHUR STEINDLER, M. D.....University Hospital, Iowa City, Iowa
JOHN S. COULTER, M. D.....47 East Superior St., Chicago, Ill.

Director Bureau of Appointments

C. GRACE COURTER.....Garfield Memorial Hospital, Washington, D. C.

Chairman, Committee on Education and Publicity

ALICE PLASTRIDGE.....307 North Michigan Ave., Chicago, Ill.

Mexico is the land of manana (tomorrow). Here everything is "momentino" (in a little minute). When I received my PHYSIOTHERAPY REVIEW for June with the report of the convention at Minneapolis, the fine articles and illustrations, I could not but compare the brisk spirit of The American Physiotherapy Association, which made possible such a program, with the sleepy indolence of my surroundings and the resultant lack of progress.

Physiotherapy is a profession—a technique based upon scientific truths. The splendid pioneer work done by our association has made it possible to write such a statement without hesitancy. As incoming president of an association which stands for the highest ideals and standards of our profession, my greatest ambition is that the next two years will show the growth that has been so well established in the past. This is indeed a high ideal.

You have shown great confidence in putting the trust of this association in the hands of the members of the west coast. The

pioneer work has been done and done well by our eastern group. May we now, realizing our grave responsibility and cherishing our trust, carry on and add our bit toward the progress of our profession.

One of the biggest problems confronting us today is "Where shall we look for the Physiotherapist of tomorrow?" We have many excellent courses offering additional training in physiotherapeutic subjects to the graduate nurse or physical education teacher. But for the uninitiated there is no school in the United States and the would-be Physiotherapist is confronted with the information that she must train to be a nurse or a physical education teacher; that she must spend years learning extraneous information before she may even start the real study of Physiotherapy. Would it not then be a worthy program for this administration to attempt to give impetus to schools wholly dedicated to the subject of Physiotherapy? If this idea meets your approval, suggestions and criticisms are very much in order.

Like the proverbial chain the American Physiotherapy Association is as strong as its weakest member. Let us all, then, get together and push OUR association forward with that same sureness and intensity of purpose given as an example by the high ideals and hard work of our predecessors.

HAZEL E. FURSCOTT.

City of Mexico, July 28, 1928.

In 1920, a group of far-seeing women who had worked shoulder to shoulder during the war took the first steps toward forming the American Women's Physical Therapeutic Association. Mountains of correspondence and unfaltering faith in the rightness of the idea resulted in enthusiastic response and in the North, East, South and West individuals grouped together to further the work of the central committee.

The first PHYSIOTHERAPY REVIEW came out in March, 1921, in a cover the blue of "R. A." uniforms, staffed by devoted volunteers and with the avowed aim "to secure a medium through which physicians and aides can more easily get in touch." Since that first brave number there have been twenty-eight followers, making their appearance four times a year. At the recent convention it was voted to increase the number of issues to six a year. Bravo!

As the association has grown and is continuing to grow, for The American Physiotherapy Association is always going forward, there comes the necessary demand for its publication to keep step. And because THE REVIEW is national in scope, being one of the points of contact between the chapters, it was also voted that these chapters

contribute, sharing with the others their splendid material. Thus the coming issues will be composed as follows: October, California; December, Pennsylvania; February, Washington, Cleveland, Rhode Island; April, Chicago, Minnesota, Oregon; June, Massachusetts, District of Columbia, New York.

With this splendid cooperation, who knows but 1929 will bring forth twelve issues and a heavy subscription list.

Part of a letter from H. J. Holmquist, executive secretary, Council on Physical Therapy, will explain why the change has been made.

"The Council on Physical Therapy has not formally approved the term 'operative physical therapist' to designate the non-medically trained person who administers physiotherapeutic treatment under the supervision of a physician. At a recent meeting of the council, a definite motion was made and carried that as the suffix 'ist' in such words as roentgenologist, etc., has been by long custom associated with the holders of degrees of medicine, this council does not approve the use of the term 'physiotherapist' or 'physical therapist' except by graduates of medicine. I would therefore suggest the following wording for the ad.

"Physical Therapy Technicians:—Registry maintained by The American Physiotherapy Association will supply trained, experienced, and recently graduated Physical Therapy Technicians, for institutional and office positions. Apply Grace Courter, Director, Bureau of Appointments, Garfield Memorial Hospital, Washington, D. C."

ORGANIZATION AND MANAGEMENT OF A HYDROTHERAPY CLINIC[1]

By REBEKAH B. WRIGHT, M. D.

The skilled Physiotherapist understands and utilizes many combinations of water and electricity. Among the most popular is the hydroelectric bath. In this treatment an electric current is passed to the patient in a porcelain tub filled with water. One of the electrodes is stationary, the other movable. The tub must be properly insulated and the current perfectly controlled through a correctly installed wall plate.

For tonic effects a mild faradic current is used in water at a neutral temperature. The good effect may be intensified by the careful reduction of the temperature and the simultaneous employment of friction. Either the galvanic current or the sinusoidal current passed through a neutral bath from head to foot produces a sedative effect and has often proved a powerful hypnotic.

THE NAUHEIM BATH

The value of the mineral baths of Nauheim, Germany, in the treatment of cardiac weakness with dilatation and chronic nephritis has long been established. The water contains calcium chloride and sodium chloride in solution and is heavily charged with carbonic acid gas. The temperature and duration of the baths are carefully prescribed. They are followed by systematic resistance exercises originated by Dr. Schott. A number of physicians, pupils of Dr. Schott, have followed the same system of treatment in America, preparing artificial Nauheim baths with water in which sodium chloride and calcium chloride have been dissolved and carbonic acid gas evolved by the addition of other chemicals. Some have impregnated the bath water with the correct amount of carbon dioxide discharged from a cylinder of the gas through bamboo rods.

Effects. The calcium chloride and carbon dioxide in water at a neutral temperature stimulate the skin, dilating its vast capillary network. A marked hyperemia ensues. The relaxing effect of heat and the vigorous circulatory reaction to cold are both avoided yet an improved distribution of the blood of the entire body follows. The work of the heart and kidneys is lessened and other viscera are relieved of congestion.

---

[1]Conclusion of the paper. The first part appeared in the November issue of "Hospital Progress." The paper was read at the Hospital Clinical Congress, Milwaukee, Wis., June 21, 1927. Dr. Wright is hydrotherapeutist to the Massachusetts Department of Mental Diseases.

The editor takes this opportunity to express her appreciation to E. F. Garesche, S. J., editor of "Hospital Progress" by whose permission this article is here produced.

THE WHIRLPOOL BATH

Arm and leg baths equipped to obtain the effects of continuous localized douches and designated "whirlpool baths" came into general use during the late war. Their popularity in reconstruction hospitals continues and they are now frequently installed in general hospitals. Your speaker has had no experience in prescribing this treatment but understands that the bath is of great value in preparing stiffened ligaments and contracted muscles, especially those so affected after fractures, for massage.

HYDROTHERAPY IN HOSPITALS FOR MENTAL DISEASES

Thus far, hydrotherapy, when intelligently prescribed and administered, has proved the most practicable and effectual form of therapy in use in hospitals for mental diseases. Throughout the past 24 years your speaker has endeavored to forward this work by cooperating with architects and hospital superintendents in planning tonic-bath and sedation suites, assisting physicians in prescribing treatments and training nurses and attendants in hospitals in the theory and technic of hydrotherapy for mental diseases.

While sometimes using water treatments for their anodyne, hemostatic, antiphlogistic, antispasmodic, and antipyretic effects, physicians who treat patients in hospitals for mental diseases are particularly interested in sedative, hypnotic, eliminative, and general tonic treatments. Where hydrotherapy is highly valued and correctly used, it so permeates the whole hospital that it cannot be confined to any one particular place. It may be administered in the rooms of patients, in ward bathrooms, in the tonic-bath suite and in pack and continuous bathrooms of receiving wards and wards for disturbed patients.

The tonic-bath suite is usually equipped for the administration of the following preparatory treatments: Fomentations, hot and cold to spine, liver, and abdomen, vapor, electric-light, and saline baths, salt glows, shampoos, and wet-sheet packs. The following douches are available in the same suite: Needle spray (circular douche), rain douche, fan douche, jet douche, Scotch douche, and perineal douche.

Local conditions may be treated in the tonic-bath suite with foot baths, fomentations, hot, warm, and neutral sitz baths, ice poultices, and cold compresses but these treatments, like wet-mitten friction and hot-blanket packs, are usually more effectual if they are administered in the patient's room.

FRICTION

Friction and percussion are two forms of manipulation that are in constant, systematic use with hydriatric procedures. In private sanitariums nearly all baths are followed by centripetal rubs. A

centripetal rub is a systematic application of friction, a light massage movement, all rubbing being done toward the heart. On account of the small number of nurses usually assigned to this work in hospitals for mental diseases, it seems best to limit the use of friction to that used in drying the patients after tonic baths, to shampoos and salt glows as preparatory treatments, to wet-mitten friction for frail bed patients and drip-sheet rubs for robust, cooperative, ambulatory patients. On account of the possibility of irritating the skin by too much friction, the shampoo, salt glow, and drip sheet are not given on successive days.

DRYING THE PATIENT

This last step of every treatment is probably its most important feature. As the patient steps from the cold fan or jet douche which concludes the tonic bath, a warm sheet is laid across the back and shoulders, and wrapped around the patient who stands upon a small, clean, washable rug. Two nurses, rubbing the patient through, not with, the sheet, absorb into the sheet all of the moisture upon the skin. It is then quickly replaced by another warm, dry sheet. The patient is then seated and special attention given to drying the hair, hands, feet, and opposing surfaces. This drying is often supplemented by brisk towel friction and percussion to assist reaction. The hands, feet, and forehead should be comfortable. There should be no excessive redness of neck and face and no throbbing of facial or temporal arteries. When returned to the ward, the patient should be guarded from drafts and have some additional clothing if not able to walk about briskly.

SEDATIVE TREATMENTS

The wet-sheet pack and the neutral continuous bath are the two major sedative treatments in general use in hospitals for mental diseases. They can be given most conveniently with the best results if the equipment for their administration is concentrated in a *sedation suite* as shown on Plan 3.

THE WET-SHEET PACK (W. SH. PK.)

The wet-sheet pack is the envelopment of a person in one, two, or three linen or soft cotton sheets that have been wrung out of water at a prescribed temperature. The cold moist fabric is held snugly against the body by two or more methodically adjusted woolen blankets. In hot weather one blanket is often sufficient.

While a correctly applied pack does limit the movements of the patient, *it should never, under any circumstances, be prescribed as a restraint, punishment, or substitute for seclusion.* It should be given for its therapeutic effects only.

The best way for nurses to master the details of the pack is to

practice the envelopment, using dry sheets, from six to ten times upon a willing model under the direction of a competent instructor.

Temperature. The sheets of the pack are immersed in and wrung out of water between 48° and 70° F. For timid persons who are delicate, neutral packs, water between 92° and 97° F. are sometimes used. Occasionally the sheets are wrung out of water between 106° and 110° F. and applied very warm. Some frail, poorly nourished, very active young patients are given hot baths, 102° to 106° F., for five minutes preceding the envelopment. The exact temperature of the water used for the pack sheets is determined from the patients' general physical condition and reactive capacity, and the temperature and humidity of the air of the room. In cold and damp weather every precaution must be taken to guard against the patient's "taking cold."

When the foot bath and hot-water bottle are used the temperature of the water for the former should be between 104° and 110° F. and for the latter 116° F. The towel compresses should be immersed in and wrung out of water between 42° and 50° F.

Effects. The ultimate results of the cold wet-sheet pack depend upon the extent and character of the patient's reaction to the cold of the moist sheets and the effects obtained from the application of cephalic cold.

Action. When the cold, moist sheets come in contact with the skin of the whole body the first effects are those of action which are common to all brief general applications of cold. They are disagreeable sensations of cold, actual cooling of the skin, contraction of muscles, sometimes shivering, pallor and cutis anserina, checked, then quickened and sometimes gasping respiration and checked insensible perspiration. The contraction of the skin drives the blood out of its vast capillary network into the interior of the body, dilating the large internal vessels and slightly elevating internal temperature. At the same time a contraction of involuntary muscle fibers concerned in regulating the circulation of the blood through the minute vessels of the spleen, kidneys, and other viscera takes place because of the application of cold to the skin areas that are in reflex relation with them. The pulse is quickened and arterial tension is increased.

Reaction. Circulatory reaction begins instantly and thermic reaction is usually established in from 5 to 30 minutes after the cold moist sheets are applied. The chilly sensation ceases. The skin becomes warm. The arrectores pilorum and the elastic fibers of the skin relax. The skin returns to its normal smoothness and hue and often becomes pink. Respiration becomes easier, slower, and deeper. Insensible perspiration begins. The large internal blood vessels contract. Internal temperature is slightly lowered. The cutaneous capillary network, capable of containing one third of the blood of the body, be-

comes distended. The pulse is slowed and blood pressure is slightly elevated. The rapidity and intensity of the reaction depend largely upon the temperature of the cold moist sheets and the method of their application. A full-blooded, excited patient will react promptly to sheets wrung out of water at a temperature of 48° to 60° F. It would save considerable labor if some of the surface heat could be withdrawn from the flaming skin of an active, excited patient by momentary envelopment in a cold dripping sheet just previous to the application of the sheets of the pack. If this is not done and much heat is abstracted from the skin by the large and cross sheets of the pack, so that they immediately become warm, it is necessary to replace them by others which are as cold or colder before proceeding with the blanket envelopment.

If there is any unusual paleness of the face, blueness of the lips or shivering, the patient is not reacting to the cold and should be removed at once and subjected to some warming procedure, as a warm bath, wrapped in hot blankets, or the application of flannel-covered hot-water bags to sides and feet under warm covering and should be given a hot, stimulating drink.

For convenient reference, we speak of the *cool, neutral,* and *superheated* stages of the pack. Action takes place and reaction begins during the cool stage and will extend into a superheated stage unless measures are taken to prolong the neutral stage and to terminate the treatment at the end of this calmative period. The neutral stage may be said to have begun when the surface of the body and the sheets and the moist air within the blankets surrounding the body have reached the normal average temperature of the skin, about 92° to 94° F. To prolong this stage, after reaction is established, remove the third or cover blanket. If the room is warm and the patient continues quiet, it is sometimes possible to remove one half of the outer enveloping blanket.

Some disturbed patients are fearful during the first few minutes after the envelopment, especially if it is the first treatment. This feeling of apprehension soon disappears and a sensation of calmness ensues. The arteries of the brain, which were dilated during the cool stage, contract during the neutral stage, decreasing the amount of blood in the brain and facilitating the accumulation of lymph in its large lymph spaces. This condition of anemia of the brain and the presence of an abundance of lymph favors sleep and the repair of nervous tissue.

Wet-sheet packs may be so managed as to secure tonic, sedative, eliminative, or antipyretic effects. While they are administered to the mentally ill for their sedative effect, at the same time the circulations of the blood and the lymph are improved, elimination is promoted, metabolism is stimulated and nutrition is heightened when they are given daily. The good secondary effects are doubtless

partly due to the stimulation, through the circulatory reaction, of torpid liver, passively congested kidneys, and sluggish bowels.

Duration. The wet-sheet pack cannot be prescribed for any definite length of time. The duration should be while the patient is quiet and comfortable. It is customary to prescribe wet-sheet packs, "One hour or while sedative effect continues." It is during the neutral stage that sedation occurs. As soon as there is any indication that the neutral stage is over, the patient should be removed from the pack. *The period of sedation varies from one-half to three and one-half hours.* Occasionally, *if the patient sleeps,* it may be four or five hours. A patient is seldom comfortable in the pack for a longer period than three and one-half hours. The patient who sleeps in the pack should usually be removed immediately after awakening. A patient becoming restless after a short period of quiet or not becoming quiet within 50 or 60 minutes, should be removed at once. A pack of short duration may be immediately followed by another pack or by a prolonged neutral bath or by a period of rest in bed, or the patient may, occasionally, be permitted to sit up fully clothed.

It occasionally happens that, in spite of careful technic, the desired sedation is not obtained. Sometimes patients react too vigorously, passing directly from the cold to the superheated stage. This is shown by talking, redness of the face, quickened pulsation of facial and temporal arteries, warmth of face and head and, finally, perspiration. The skilled hydriatric nurse watches patients in packs closely and endeavors to obviate any of these phenomena of superheating by removing the patient before they can occur, renewing the pack and applying cephalic cold freely. After removal from the pack, it is sometimes possible to continue the ice cap to the back of the patient's neck for 15 or 20 minutes.

Cephalic Cold with the Pack. Continuous cold cephalic applications are used to counteract active cerebral congestion. When applying cold or neutral wet-sheet packs to restless, active, or noisy patients, it is necessary to be prepared to apply cold to the head as soon as the blanket envelopment is completed. If the patient becomes quiet while being enveloped and there is no undue warmth or flushing of the face, the cephalic cold should be omitted. Its application is often a severe tax upon the tact and ingenuity of the nurse. The icebag to the back of the neck or an ice collar around the neck and cold compresses to the cheeks and forehead are the usual forms of application.

A prolonged application of cephalic cold causes contraction of the cerebral arteries, thus lessening the amount of blood in the brain; a cold application to the head which includes the neck contracts the carotid and vertebral arteries and all of their distal branches; continued cold to the head lowers the temperature of the brain; cerebral

thermic centers are depressed; heat production is diminished and vital activity is lessened.

The cold compresses are discontinued as soon as warmth and flushing of the face subside. They may be applied for 6, 10, 15, or 20 minutes. The icebag or ice collar may be discontinued early, within a few minutes or within a half hour if the patient is quiet and the face is not warm or flushed. Often a patient will sleep when the icebag has been removed and replaced by a comfortable pillow. Others require cephalic cold throughout the pack. The vascularity of the scalp is so great that the circulation continues unimpaired under the prolonged application of ice.

MANAGEMENT AND AFTERCARE

For sedation. Stimulation of the activity of the kidneys is one of the frequent reflex effects of the application of the cold, moist sheets. Except in the rare cases where the physician considers gavage necessary or a frail patient needs warm nourishment, your speaker discourages giving liquids just before or during the pack. While drinks are not offered, water is never withheld if the patient is thirsty. The patient should void urine just before the sheets are applied. Peristalsis of the bowels is also stimulated by the general application of cold. It is desirable that the patient's bowels should have moved previous to the administration of the pack. Enemas are practicable for cooperative sleepless or restless patients. Even with precautions, patients sometimes have to be removed from the pack for attention to the emunctories. A case of involuntary soiling should be removed, bathed, and reenveloped.

The nurse assigned to observe the patient should try to do it without attracting the attention of the patient. She should discontinue the face and forehead compresses as soon as possible and leave the patient alone to rest and sleep. It is sometimes necessary to remove the cover blanket or the icecap, to add covering, to give a small drink of water (upon request), to observe the respiration or the color of the patient's face or even feel of the face or count the temporal pulse. Any of these attentions should be given as quietly as possible to avoid stimulating and again exciting the patient.

For elimination. When it is necessary to push elimination through the skin the pack is permitted quickly to reach a superheated stage. It is sometimes applied neutral, 92° to 97° F. or warm, 100° to 106° F. The heat is retained by surrounding the sheet and blanket envelopment by a rubber sheet. The superheated stage is maintained from 30 to 60 minutes. Profuse perspiration is induced. Liquids are given freely. There is often considerable activity of both kidneys and bowels. If there is no soiling from the emunctories the odor of the sheets, when removed, indicates that considerable waste material

has been eliminated through the skin. Cephalic cold is carefully applied. The pulse is closely watched. Flushing of the face subsides. Blood pressure, judged by palpating the temporal pulse, is lowered. Sedation is obtained.

Aftercare. The prolonged warm moisture of the pack renders the skin of the whole body unusually sensitive. It is, therefore, important to dry the skin thoroughly, dust with talcum powder and shield from drafts after the treatment.

It is sometimes practicable to follow a pack administered during the day by a neutral shower of a few seconds' duration at a low pressure. If it can be given without stimulating circulatory reaction and again exciting the patient, it enhances the feeling of well-being. The patient is dried in a warm sheet without friction.

When the treatment is administered at night, the patient is removed from the pack when quiet has been induced, dried in a warm sheet without friction, dressed in a warm nightrobe, given a glass of hot milk and placed in bed.

Therapy. The wet-sheet pack is administered for its sedative, hypnotic, or eliminative effect to restless, sleepless, or excited patients at some time during almost every psychosis. Sedative packs, applied cold and kept at *the neutral stage,* are prescribed for the excitements of the manic-depressive and epileptic psychoses, dementia praecox, psychoses with mental deficiency, psychoneuroses, and the agitation of involution melancholia. Eliminative packs are given to excited patients suffering with acute nephritis, the exacerbations of chronic nephritis, beginning with arteriosclerosis, and the alcoholic psychoses (pathological intoxication, delirium tremens, Korsakow's syndrome and acute hallucinosis). In the packroom of the tonic-bath suite wet-sheet packs are the most valuable available preparatory treatments for sleepless, restless, or hypomanic patients and those recovering from manic attacks. They are followed by the usual needle sprays and douches.

Contraindications. Cold wet-sheet packs are not prescribed for very frail elderly or middle-aged patients or for those who have organic heart lesions or advanced arteriosclerosis.

THE CONTINUOUS BATH (C. B.)

A continuous or prolonged bath is one that is administered for hours, days, weeks, or months. It is sometimes called a continuous flowing bath if the prescribed temperature is maintained by keeping a stream of water flowing through the tub. It is given between the temperatures of 92° and 97° F. It is a prolonged neutral bath, as it neither adds heat to nor abstracts heat from the skin.

Duration. Some patients are soothed and kept comfortable by baths of short duration (2 or 3 hours), given two or three times

during each 24 hours. Daily baths of 6- or 8-hours' duration are frequently administered to excited patients. In some hospitals daily continuous baths of 18-hours' duration are given. Some very disturbed patients are kept in the baths without removal for periods of two or three weeks. Persons suffering from extensive burns are kept in the baths all of the time. Paralyzed persons with decubitus are frequently kept in the baths for days.

Instruction. Every nurse assigned to duty in the continuous bathroom should receive from 4- to 8-hours' instruction from the hydrotherapist.

Rules. A list of rules should be conspicuously displayed in every continuous bathroom. They should cover briefly the subjects of responsibility, prescriptions, care of tubs and mixers, position of patient, support and covers, temperature of bath water, pulse, cephalic cold, drinking water, nourishment, toileting patients, care of the room, fabrics, utensils and ice, records, accidents, method of removal, and aftercare.

DANGERS

Hydrotherapy is a two-edged sword. The dangers of the continuous bath—fainting, chilling, scalding, drowning, and convulsions cannot be too strongly emphasized. Three serious accidents may result from variations in the temperature of the bath water:

First, *fainting.* This occurs if the temperature of the bath water remains at or above 98° F. for any length of time, especially in hot summer weather. It must be avoided. In hospitals where the principles of hydrotherapy were not well understood, this unfortunate accident has occurred. Death followed. When the collapse of the patient in the continuous bath was investigated, it was usually found that the temperature of the bath water had remained above the temperature of the skin for an hour or longer, preventing the elimination of body heat.

The nurse is instructed that if this unfortunate accident occurs she should summon assistance, remove the tub cover, drain the tub, lift the patient out into warm blankets spread upon a couch or upon the floor and give the first aid usually rendered to fainting persons. The patient's skin may be warm from the too warm water of the bath, but chilling must be prevented. Stimulants are given by mouth or hypodermatically, as ordered by the physician, who should be called at once.

Second, *chilling.* Many patients have been eating poorly. Their vitality is low. The quality of their blood is poor. All of their tissues lack tone. The heart and arteries are not equal to any unusual demands. A bath at 96° F. may abstract from the skin of such a person more heat than is supplied to it by the poorly circulating, impoverished blood and chilling is inevitable. Chilling will almost

surely occur if the temperature of the bath is below 92° F. in summer or 96° F. in winter.

A patient complaining of being cold, and showing signs of chilling (blueness of the lips, undue pallor, cutis anserina or shivering), should be removed immediately, placed between warm blankets, surrounded by moderate heat and given a stimulant if ordered by the physician.

Third, *scalding*. In this connection permit me to repeat that "No mechanical contrivance for controlling the temperature of the water is so perfect that it may not wear out and break down sometime." The only absolute insurance against this terrible accident is eternal vigilance on the part of the nurse. She must always have her eyes on the patient and her hands frequently in the bath water.

There are two other serious possibilities:

First, *drowning*. If a patient should faint from any cause or have a convulsion and the nurse was not watching carefully, the patient's head might slip down into the water and drowning would occur. Many of these patients are actively suicidal. Some who have not shown any suicidal tendencies may be suicidal. The chance of death by drowning may suggest itself to one of them and in an instant, upon the impulse of the moment, the head may be drawn under the cover and submerged. *The nurse cannot be too watchful.*

Second, *convulsions*. These sometimes occur. There is always the possibility of heat prostration when a patient has a convulsion in the tub. The patient should be immediately removed from the bath, protected from drafts, and otherwise cared for under the direction of the physician.

EFFECTS

The good effects of the continuous bath depend upon keeping the bath at neutral temperature, between 92° and 97° F. It may, upon the order of the physician, be permitted to remain at 90° F. during the warmest hours of a very hot summer day. If a frail, poorly-nourished patient complains of being cold in water at a temperature of 96° or 97° F. the temperature of the water may be elevated to 98° or 100° F. for five or ten minutes. This is never done at the discretion of the nurse but upon the order of the physician, who then assumes the responsibility.

When a patient is inactive in the bath the pulse usually becomes slower. The activity of the skin as a respiratory organ is suspended but respiration by the lungs is not affected. The checking of the elimination of sweat by the skin throws additional work upon the kidneys so that the urine eliminated is increased in quantity. The acidity of the urine is decreased.

In absolutely neutral continuous baths there is no circulatory

nor thermic reaction. There is some cooling of the surface of the body in a bath at 92° or 94° F. If this temperature of the water is slightly below that of the skin, and the inactivity of the soothed patient permits the elimination of some heat from the surface of the body, the internal temperature of the body remains normal.

As a result of the cutting off of those reflex influences due to the contact of the skin with the air at a temperature below that of the body, heat production is lessened. The activity of the thermogenetic processes in the muscles is annulled. This effect of the bath necessitates special care to avoid chilling by afterexposure to cold air. The patient should recline for one hour after the bath and have enough covering to prevent chilling, but not enough to overheat the body.

It is a well-known fact that no water is absorbed through the skin. One author advances the following theory about the soothing effects of the prolonged bath: With most of the skin of the body surrounded by water, insensible perspiration is suspended and the fluid usually eliminated by that means accumulates in the skin. The cutaneous nerve endings thus become supersaturated. This absorption of uneliminated fluid by nerve filaments lessens nerve sensibility. As a result the nerve centers are at rest and are given a chance to accumulate a store of nutrition and energy. Consequently, delirium, agitation, excitement, and motor activity are relieved, sleep is induced, and the regeneration of nervous tissue takes place.

COMPLICATIONS

Bath rash. Occasionally a patient develops a slight eruption upon the chest, shoulders, or some other skin area. It is usually difficult to ascertain why that patient's skin reacts to water in that manner. The bath is omitted for two or three days and the rash promptly disappears.

Bath pruritus. Patients who habitually have itching of the skin after a bath of any temperature will not be free from it after the neutral continuous bath. However, the intense itching (usually most intense in the skin of the legs below the knees) will subside in from 10 to 20 minutes if the patient is thoroughly dried, dusted with talcum powder, and covered in bed with warm, dry, soft linen or cotton sheets.

Abrasions. If these occur dry the patient thoroughly and dust the abrasions with stearate of zinc. If they do not heal promptly the baths should be discontinued temporarily and especial attention given to treatment of the abrasions.

THERAPY

Continuous baths are prescribed some time during the course of almost every psychosis, to relieve excitement, agitation, delirium,

increase motor activity, renal insufficiency or insomnia. They are also employed in the treatment of extensive burns and in decubitus of the paralyzed.

PRESCRIBING HYDROTHERAPY

While there are some forms of illness in which hydrotherapy is inert or positively contraindicated, it has a wide field of usefulness. In general hospitals, especially those in which clinics are held for the instruction of medical students, the hydrotherapy is perhaps most frequently prescribed by physicians who specialize in physical therapy. However, with the increasing general interest in all forms of physical therapy, physicians specializing in almost every branch of medicine and surgery are utilizing the facilities of the well-equipped hospital. The orthopedist prescribes whirlpool baths and Scotch douches; the dermatologist, continuous baths; the urologist, sitz baths; the obstetrician, sitz baths and hot-blanket packs; the gynecologist, sitz baths and partial packs; the neurologist, douches and hydroelectric baths, and the internist, Brand, Burr, and Nauheim baths and partial packs.

In order that the desired therapeutic effects should follow the treatments, it is imperative that they be most carefully prescribed. The temperature and duration of all local and general applications of water (hot, cold, or neutral) should be stated in the prescription and when douches are ordered the pressure should be prescribed.

Intelligent prescribing, observation of patients during treatments, and careful reading of the records of the reactions by the physician are essential to the success of hydrotherapy for the mentally ill. It is as important that the physician should prescribe the hydrotherapy as it is that he should prescribe the tonic, sedative, or hypnotic drugs required by the patient.

PRESCRIPTION AND RECORD BLANKS

The following described prescription and record blanks were adopted by the Massachusetts Department of Mental Diseases four years ago:

Form A-38 for Tonic Baths. This blank has columns for date, pulse, respiration, and reactions to needle spray, fan and jet douches, and thermic reaction. It has a broad central space for the record of reactions to preparatory treatments.

Form A-37 for Continuous Baths. This blank ruled on both sides has spaces for several treatments. At the head are spaces for the patient's name, the hours of duration, the temperature, and the physician's initials. Each treatment space on the blank has three narrow columns in which to note the hour, the pulse, and the temperature of the bath water and a wide central space for other notations.

Form A-36 for Wet-Sheet Packs. As wet-sheet packs are often ordered once, twice, or thrice daily for several successive days, one prescription often answers for several days. The prescription is printed at the head of the blank. Spaces are left for the patient's name, the date, the temperature, the number of times daily or the words "as ordered" and the physician's initials. As many packs are administered by attendants who are not accustomed to recording details, a paragraph below the prescription tells the nurse or attendant exactly what to record.

SUMMARIES

Following the record of six, twelve, or eighteen treatments the physician writes a summary across the page disregarding the perpendicular lines on the form. It is based upon the records of the treatments, upon reports from the wards, and upon his own observation of the patients upon the occasion of his visits to the wards and to the hydriatric suites.

The patient's appetite, state of nutrition, weight, condition of the bowels, blood pressure, blood-cell count, differential white-cell count, hemoglobin percentage, and any abnormal conditions of the urine should be noted in the first summary. This furnishes a basis for comparison. A weekly weight record is kept. This rate and quality of the pulse are closely watched.

It is desirable to keep all of the records of each patient's daily hydriatric treatment, both tonic and sedative, in one file separate, on account of its bulk, from the continued notes usually dictated by the ward physician. This file contains accurate records of daily treatments by the nurses who gave them and summaries dictated by the ward physicians, a complete record of each patient's hydrotherapy. The information is useful to the physician *when dictating continued notes and when consulting with others about the patient. The file contains valuable material for future authentic articles upon the results of hydrotherapy.*

THE MONTHLY REPORT

Form A-41 is a Monthly Report Blank. These are kept in the continuous bath and packrooms and notations are made every day. Each blank has a column for the names of patients and after each name there are 31 small squares in which the number of hours occupied by the treatments are recorded. At the end of the month these are added by the hydrotherapists and included in a monthly report of all hydrotherapy administered in the hospital. The same blank serves the hydrotherapist for enumerating the tonic baths from day to day.

The monthly report of the hydrotherapist is typewritten upon plain paper. It has three or more parts. *The first part* names and enumerates the tonic baths. These include the foot baths and wet-

sheet packs given as preparatory treatments. Three columns show the number of treatments given to male and female patients and the total. The psychoses of the patients are then named, three columns showing the number of males, females, and the total. The psychoses of the patients who have been discontinued are enumerated in three columns. The reasons for discontinuing treatments and whether the patients are improved or not improved are stated.

The second part is a tabulation of the continuous baths administered during the month. The number of male and female patients treated, the number of baths of each sex, the number of hours for each, and their totals are given. The psychoses of the patients who were treated are named and enumerated. The psychoses of those who have been discontinued are noted, as in the first part.

The third part is a tabulation of the wet-sheet packs administered to patients in the wards or in the packrooms. The form used for the continuous baths is followed.

The fourth part. If any general or local massage has been administered, it is briefly reported under the heading of *massotherapy.*

Ward hydrotherapy is the heading used for brief reports of fomentations, saline baths, wet-mitten friction, and other treatments administered to patients in their rooms. *Local electric-light treatments* which were not administered in the hydriatric suite are given this separate heading.

The fifth part. The hydrotherapists have usually given lessons in wet-sheet pack envelopment to a number of new attendants and nurses, in the technic of tonic and continuous baths to one or more nurses in training, and have demonstrated treatments as some physician has lectured. These are reported under the heading *Instruction.*

Six copies of the monthly report are typewritten. The original is for the superintendent and is filed. Two are for the assistant superintendent and other physicians, one is for the superintendent of nurses, and there is one for each hyrotherapist.

INSTRUCTION

Throughout the last thirty-five years of his life, Dr. Simon Baruch emphasized, in lectures before medical educators and in his books, the importance of hydrotherapy in the curriculum of the medical school. As a result, the general principles of hydrotherapy are now taught in most of the medical schools in the United States and Canada. Dr. Baruch concluded the second edition of "The Principles and Practice of Hydrotherapy," 1903, with three pages on "Necessity for Instruction in Hydrotherapy."

He wrote: "The author hopes to bring the medical profession to a realization of the danger which by reason of their indifference

threatens them and their *clientele,* by presenting the above brief *résumé* of the history of water as a remedy. He would urge most earnestly a careful, conscientious, and thorough investigation of its physiological and clinical claims, and the introduction of means for better instruction of medical students in the theory and practice of hydrotherapy.

"Vogel regards 'the insufficient education of medical men in physical therapeutics, especially in hydrotherapy, as a serious defect, which injures physicians in their earlier practice, and for which it is difficult to compensate later.' He justly holds that 'hydrotherapy should be taught in its entirety, as Winternitz has done, upon a physiological basis. By lectures and clinical demonstrations it should be brought before the student just as other therapeutic agents and methods are offered to him—as obligatory branches of study.'

"In this connection the views of Professor Vierodt, of the Heidelberg University, are of great interest, as showing that the seed which Winternitz many years ago sowed is now about to reach fruition in his own country. Vierodt says: 'All signs indicate that hydrotherapy will succeed in obtaining a distinct and clear position in medical science, and that it will correspondingly reach the consideration in medical instruction to which it is entitled. Hydrotherapy can be taught only practically, because it must be applied more individually than any other therapeutic agent.'

"Professor Vierodt has established an arrangement for baths, douches, massage, etc., in connection with his polyclinic, where trained attendants apply them under strict medical supervision with regard to temperature, duration, and force. One of his assistants resides near the institution and watches over its work. 'All expectations have been amply fulfilled. It is utilized for instruction of small groups of students in the polyclinic, who thus learn practically, under the personal supervision of the professor and his assistants, the indications for and application of the more simple and useful hydriatric methods. Experience gathered in this small institution warrants the recommendation that facilities for ambulant hydriatric treatment should be connected with every medical polyclinic, for the benefit of patients and students alike. *Hydrotherapy should be included in medical instruction,* not as a specialty; it should be brought completely into the dominion of our scientific curative agencies by the careful selection of procedures and of cases to which it is adapted.'

"In Leipsic, Professor Windscheid, and in Jena, Professor Mathes, teach hydrotherapy. Professor Credè also insists upon the necessity of applying hydrotherapy and other physical remedies in the hospitals, and pleads for instruction in these branches in the universities. He claims with justice that 'if physicians were better versed in these branches, the field of operation of many quacks would be greatly curtailed.'

"With regard to the teaching of hydrotherapy in our schools, it is unnecessary to add anything to the pleadings of recognized teachers, with whose views the author is in entire accord. My personal intercourse with many physicians affords daily illustration of the truth of their statements and the correctness of their views. I would most earnestly commend to the consideration of the faculties of our progressive medical schools the example of the universities of Vienna, Heidelberg, Berlin, Jena, and Leipsic."

THE COURSE FOR MEDICAL STUDENTS

The first ten lectures of the course should cover the underlying general principles of hydrotherapy as discussed in each of the large textbooks on the subject. A very brief review of the anatomy and physiology of the skin, the nervous system and the circulatory system, and the physical properties of water is essential.

The rationale of the action of water in health, that is, the physiological effects of *hot* and *cold local* and *general* applications upon all of the tissues of the body should be discussed. The physiological effects of water at a *neutral temperature* and the place of *friction* with hydrotherapy should be covered. These lectures should be accompanied by demonstrations upon carefully selected healthy models. The demonstrations should be given by a skilled hydrotherapist under the personal direction of the physician who lectures.

Throughout the remainder of the year the course should consist of the presentation of cases, the resident and outpatients of the hospital who are receiving hydrotherapy. This should include complete records of physical and laboratory findings, diagnosis, an outline of treatment and notes on the improvement from day to day or week to week. If the expected therapeutic effects are not obtained it should be made very clear to the students why the patient failed to react favorably to hydrotherapy. Thus instructed, the young physician will enter hospital practice and later private practice fairly well acquainted with this portion of his armamentarium.

THE COURSE FOR PUPIL NURSES

While hydrotherapy is a large part of practical nursing and the pupil nurse who has studied the latest textbooks is acquainted with the underlying principles of the subject, it can be made very interesting and its value emphasized if her theoretical instruction includes a course similar to the one just outlined for medical students.

The technic of any hydrotherapeutic procedure cannot be learned from watching only one demonstration. Skill can be attained only with experience. However, after the pupil nurse has had this course she can begin her one or two months' practical work in the hydro-

therapeutic department of the hospital with intelligent interest, perhaps enthusiasm.

COURSES IN HOSPITALS FOR MENTAL DISEASES

In Massachusetts a hydrotherapeutist, your speaker, gives courses of instruction in the state hospitals. When the work was begun, several years ago, the institutions were all handicapped by the postwar shortage of nurses and physicians which necessarily limited the use of hydrotherapy in those institutions where equipment was installed. It required three years to get the work organized in the twelve hospitals. New buildings are being erected; new equipment is being installed; changes in personnel continue. The need of further instruction and reorganization make repeated visits desirable.

Three months was the average duration of the first visits. The duration of the return visit is from six to ten weeks, depending upon ever-changing conditions. Occasional surveys are made, the hydrotherapeutist spending one week at each hospital.

The course consists of assistance to those physicians who are just beginning to prescribe hydrotherapy, training two hydrotherapists and two assistant hydrotherapists in the technic of tonic and sedative treatments, giving many lessons in the technic of continuous baths and wet-sheet packs to nurses and attendants and giving lectures adapted to the various groups. The hydrotherapists, while becoming familiar with every detail of the practical work, are required to write answers to review questions on a number of articles on hydrotherapy and to study carefully two chapters on "Organization and Management of the Hydrotherapeutic Department."

When the practical work is going fairly well, lectures on the wet-sheet pack and the continuous bath, accompanied by demonstrations, are given to several groups of nurses and attendants. When the hydrotherapists and their assistants have become proficient in the practical work, they are required to demonstrate the treatments available in that hospital before the medical staff.

The hydrotherapeutist has sometimes given from eight to twelve lectures on hydrotherapy to the class of nurses in training. However, that service was of only temporary assistance to the hospital. The lectures on hydrotherapy to pupils of the school for nurses should be delivered by a physician of the hospital's staff.

REFERENCES

One and three from manuscript, "Hydrotherapy in Hospitals for Mental Diseases."

Two and four, John H. Kellogg, M.D., in "Rational Hydrotherapy."

GLEANINGS FROM A VISIT TO EUROPE*

By MATHEA BOXETH

Members of the American Physiotherapy Association, I am very sorry not to be able to meet you at this convention, as I had made so many plans to be there, but plans do not always work out the way we hope they will.

Miss Hazenhyer has asked me to tell you something about the European clinics I visited last year while in Europe and what they are doing in Physiotherapy.

Three P. T.'s, Marguerite Irvine of Seattle, Nina Haugen of Minneapolis and myself made this trip together. All told, we visited thirteen countries, incidentally taking in a few of the clinics and hospitals that had been recommended to us by doctors in this country.

The first place of interest was Bath, England, with its Royal Pump and famous Spa where they have natural hot springs and splendid equipment for every type of a bath. One type that interested me greatly was a body whirlpool, where the patient could lie down and get a gentle water massage. Some diathermie and ultra violet were used but the main work was done by hydrotherapy.

In London we were introduced to Mr. Franklin, president of the Royal Society of Physicians and Surgeons. He took us to see two of the nursing homes which are really small private hospitals operated by graduate nurses. His suggestion was that we visit the St. Thomas Hospital, where they have the largest Physiotherapy department in London, so to St. Thomas we went. Here four large rooms are devoted to Physiotherapy, where massage and exercises are given—some electrotherapy, but their machines are all very old types, nothing modern. The kinds of cases treated here were the ordinary cases we get in our industrial clinics. This clinic was also a training school for Physiotherapists.

At Stockholm, Sweden, we had hoped to visit the Royal Institute but found it closed for the summer. That was a real disappointment, as I think all of us who have studied Swedish gymnastics nurture the hope that some day we may visit this institute. We did, however, see the institute but not the work done. The gymnasium was a very large room with every conceivable type of apparatus, some of which is no longer in use.

Copenhagen, Denmark, I believe, has the most up-to-date Physiotherapy equipment and the work we saw there was very interesting. Bispeberg Hospital, the largest hospital in Copenhagen, is a beautiful place, with large park adjoining, for the use of patients and members of the staff. We met Miss Munat, the superintendent, who was a charming woman and could speak English. She took

*Read before the seventh annual convention of the A. P. A.

us all over the hospital. Their Physiotherapy department was very complete in every way.

Riggs State Hospital has a very large hydrotherapy department. One thing we noticed here was that very low plinths were used. These would be very hard on the operators.

The Finse Institute is a very worthwhile place to visit. Here they treat two hundred cases of lupus every day. Carbon arc water-cool lamps are used for localized treatments. Four patients can be treated at once. For general treatment, sitting about 20 to 30 inches away, five patients can be treated. Their statistical records show that they are having splendid results.

We called on Madam Bertram, who is a teacher of gymnastics at the university, and who also has a school of her own, called the Bertram School. Her exercises are based on the fundamental study of body culture. We were invited to see her special class at work. This class she was taking to England for demonstration work. It was very interesting and the girls did some excellent work but she certainly makes them work hard.

In Germany, Hamburg was the first place of interest. Here we met Prof. Dr. Bauer through a letter of introduction from his classmate in Seattle. Dr. Bauer gave us a card to all the German doctors throughout Germany and also made arrangements for us to be taken through the state hospital at Hamburg.

The day following our interview with Dr. Bauer we dashed off to the state hospital. A young German doctor took us around. Poor fellow! He could scarcely speak any English, so had a terrible time trying to tell us about things. In this hospital they had three rooms of Zander apparatus, every mechanical contrivance imaginable. In the massage room were some splendid graded charts for massage. We inquired where they could be purchased but found they were made only for the hospital. They had a large children's ward—many poliomyelitis cases. We found they operate on their polio cases after one year. There was one room for diathermie work and they gave a great many treatments.

In Berlin the most interesting clinic was Dr. Klapp's school, where they teach creeping exercises for scoliosis. There the children have one hour of exercise and one hour of rest in the sunshine, then go back for one hour more of exercise. So in all they get two hours of exercise every day.

In Germany you find the best work in hydrotherapy and a great deal of mechano therapy.

At Vienna we visited Dr. Lorenz' clinic and hospital. Dr. Lorenz was in America at that time but his assistant took us around and showed us some of the work they were doing with operative spastics —not much Physiotherapy done in that clinic.

At Dr. Spitze's Hospital we had the pleasure of meeting Dr. Spitze, a most charming man. His assistant piloted us through the place. It is a very large hospital with sun porches all around. Here patients can bask in the sunshine all the time. Their Physiotherapy department consisted largely of Zander apparatus operated by electricity. All one has to do is to press a button and all the machines start working. Quite fascinating to see knees, shoulders, ankles, all being exercised.

Our next stop of medical interest was Bologna, Italy, where we visited Rizzoli's Institute. This institute is built on a hill about half an hour's ride from the city of Bologna. It had been an ancient convent of the Oleventan Monks and was acquired by Dr. Francesco Rizzoli in 1880 for the purpose of founding an orthopedic hospital. Prof. Putte is now the leading surgeon. Some splendid work in orthopedics has been done by him. To obtain admittance to this institution was no small matter. The door man could not speak a word of English, while we used every Italian word we could find in our dictionary but without avail. Finally after camping on their doorstep for half an hour, a man came who could speak English. He turned out to be the business manager, so our troubles were over. He took us all through the hospital. In the first cloister was the large gymnasium. Here we saw some very fine apparatus for scoliosis work. The apparatus that interested me most was an elevated plinth for suspension work. On the same floor was a magnificent marble lined operating room equipped with projector apparatus and modern surgical instruments, most of which were made in their own work shops. In the central cloister were various compartments of hydrotherapy, diathermie, and heliotherapy. We saw very little massage work except Zander apparatus. The upper story contained the wards and private rooms of first, second and third class patients. The dining rooms and reading rooms also occupy this floor, all adjoining an immense corridor about five hundred feet long. This corridor is used by the patients in taking their walking exercises on rainy days. It is a wonderful place. Be sure to include the Rizzoli Institute in your itinerary when you make your plans for Europe.

Paris was our last stop. Here we visited the American Hospital, a most beautiful place. They have a small Physiotherapy department under the supervision of Dr. Lambier. The day we were there the Physiotherapist was not there so we were unable to see any of the work. While at this hospital we called on Dr. Reverie, a very wonderful French doctor, one of the first medical men to become interested in electrotherapy. He has almost every kind of electrotherapeutic machine in existence from years back.

We spent one day at Berck, on the northern coast of France. In this city are several hospitals for children with tubercular bones.

Only bone cases can stay there, as the air is too severe for pulmonary cases. The children live out of doors most of the time, either on the sun porches or on the seashore, where they ride around in derby carts, those in body casts manipulating the cart by means of a mirror overhead.

On the whole our visits to the European clinics were very interesting as well as instructive and I know you would all enjoy them but I do not believe one will find anything different from what we have in our own country. It seems to me that physiotherapy work is at the same degree of standard in this country.

Greetings and best wishes for a successful and inspiring convention.

THE PHYSIOTHERAPIST'S BACKGROUND FOR THE TREATMENT OF PAINFUL SHOULDERS

By LORENA McPEEK

It is necessary that the Physiotherapist depend upon the physician and his background when beginning the daily treatments for his patients. But since the busy doctor has his days more than full and must not be bothered too often, in the final details of her work she must depend upon herself. And it is in the wise or unwise execution of these details that the good or bad results are obtained.

Usually the patient has had a thorough physical examination with the laboratory tests before having been brought to the physical therapy department. But there are many cases where the pain is so intense that some relief measures must be instituted immediately. To apply even the first treatment successfully, the background of the Physiotherapist is important. She has only a certain amount of time which must be used to the best advantage. The poor use of even a few minutes of this time means the loss of this first and greatest opportunity for herself as well as for the patient.

If a case remained in exactly the same stage from day to day as it was when it was brought in, she might still get along with only standard technique and routine procedure. But since a shoulder case in itself is somewhat complicated and since the location of the greatest pain may change within twenty-four hours, she must have a comprehensive conception of what might be expected of shoulder cases in general. Thus she can intelligently manage the location of the treatment, its kind, its duration, and its extent.

The physical therapy technician should have a first hand knowledge of anatomy and know some pathology as well. The ability to study the patient as an individual is desirable. Sometimes it is necessary to change the minor details of the treatment according to the needs of the case. She should have this same background that she may intelligently recognize the signs of progress toward recovery, as well as the danger signals which need to be reported to the doctor in charge.

Neither can she treat all neuritis cases alike or all bursitis cases alike. We sometimes have a patient with symptoms of both. Periarthritis was suggested in a recent A. M. A. Journal as descriptive of pain in the structures surrounding the shoulder joint. Whatever the diagnosis, a knowledge of the anatomy of the joint, of the nerves, muscles, and circulation seems to be of the utmost importance. Most Physiotherapists are well grounded in their knowledge of musculature but lag behind somewhat in attaching enough importance to the innervation of the muscles themselves.

With a number of neuritis, as well as bursitis cases, we find a disabling shoulder joint with joint inflammation causing severe pain when the patient attempts to raise the arm. Drs. King and Holmes[1] in a recent A. M. A. Journal say, "We would stress the proximity of various structures to the true shoulder joint. The capsule is dependent for its strength on the tendonous insertion of the supra-spinati and the infra spinati, the subscapularis and the teres minor. The subcoracoid and the subacrominal bursae as well as the biceps tendon are separated from the shoulder joint only by a very thin capsule. Inflammatory changes involving any one of these structures will quickly involve the others." When a patient comes to us with constant pain and inability to abduct the arm, the first rule is negative. We must not irritate the joint further with heavy massage, strong exercises, irritating manipulation or strong diathermy.

The second rule is positive. We place the arm in a position of rest, bake around the nerve centers, cool with witch hazel and powder and place the arm in a sling. For some conditions a platform splint is ideal. But with some cases there is too much pain to even have the elbow passively abducted from the side. We warn the patient against using the arm or hand and request that they forego the luxury of long car rides. We ask the patient, particularly in the winter, to keep an extra protection for warmth over the back, chest, shoulder, and arm of the side affected. Sunshine and general ultra violet are a help in the treatment. The timing of the baking may be so arranged that one-half of the total time spent will be in the region of the seventh cervical vertebrae, and extending several inches in each direction from this center. One-fourth of the time may be spent at the side of the neck centering at Erbs point, and the remaining portion of the time may be spent over the top of the shoulder. After a few treatments, we expect to find less pain, when passive movements of the shoulder joint may be begun. These are effected by having the patient in a supine position, the Physiotherapist carrying the arm in stretching to a point just below the point of pain and holding the arm in this position for about thirty seconds. The range of the outward and inward rotation may be increased in the same manner. If there is enough strength in the arm, "active-assistive" motions may be begun but only for a few degrees at first, and not more than three contractions of the muscles involved. Then this too, must be with complete support. If pain results, the arm has been too much strained or the arm has not yet progressed to the proper stage for exercise, although if carefully done, the manipulation may be employed in the early stages with only good after-effects. The biceps must receive some of this attention also, because one of its tendons is so apt to become affected in a shoulder inflammation.

---

[1]Drs. King and Holmes: "The Diagnosis and Treatment of Four Hundred and Fifty Painful Shoulders." Jour. A. M. A., 89:23 (Dec.) 1927.

In this way the deltoid or any painful muscular region may be activated. If there is any forcing, the deep inflammation is increased and our own ends defeated.

As soon as the patient is able, posture training is begun. Its necessity is explained by Goldthwait[2]: "If the shoulder is allowed to droop, the whole shoulder is rotated forward, outward and downward; in this rotation the coracoid and acromion processes are naturally brought forward and downward, and the point of contact of the coracoid process with the humerus is made necessarily lower and must be more constant." The subcoracoid bursa is situated between the top of the coracoid process and the outer surface of the capsule of the shoulder joint as it extends to and over the lesser tuberosity of the humerus. In much of the use of the acromion in the common attitudes which are assumed, the bursa is subject to irritation from the pressure of the lesser tuberosity of the humerus against the coracoid process."

King and Holmes[3] suggest that subacromial bursitis is in many cases only a secondary effect because "all inflammatory processes involving the joint and its proximal structures will in time involve this bursa. The capsule of the joint is influenced by the relaxation or atrophy of its supporting muscles following an injury. It has a convenient bursa which becomes affected from the resulting inflammatory changes and which is unjustly blamed for the resulting disability. Of course secondary changes with adhesions do occur in this bursa; treatment directed at breaking up these adhesions followed by measures to restore muscle tone should assist in giving the desired results."

I now wish to call attention to a method of treating painful arms due to neuritis, especially when the pain is located low in the arm, in the region of the elbow, or even wrist or fingers. This method consists of baking over the large nerve trunks of the brachial and of the cervical plexus and their exit from the spinal cord. This concentration over the neck and shoulder has been effective so many times when baking directly over the painful area was without results. It seems that here is a field for extensive investigation.

This paper is only the beginning of an idea which is very incomplete. Possibly Physiotherapy in this particular field may be made more effective, directing the treatment to the brachial plexus with its branches and relations with the cervical plexus.

In a few selected cases where there seems to be stubborn adhesions in the shoulder joint, diathermy with a very low milliamperage may be given through the joint capsule. If this causes any

---

[2]Dr. Goldthwait: "An Anatomic and Mechanical Study of the Shoulder Joint." American Journal of Orthopedic Surgery, 6-579-1909.

[3]Drs. King and Holmes: "The Diagnosis and Treatment of Four Hundred and Fifty Painful Shoulders." Jour. A. M. A., 89:23 (Dec.) 1927.

aching, either during or after the treatment, it must be given at a lower reading or omitted altogether. As the patient progresses, wall measurements are an encouragement to all. Even though at times the pain may still be severe, the patient can always mark his progress with the ability to send the affected arm to a greater height than the week before. Most wall measurements will show the patient able to go the highest with the arm reaching forward, next highest with side of the affected arm toward the wall and some patients cannot even touch the wall laterally standing with the back against the wall.

The Physiotherapist's real joy comes when the patient says: "I slept better last night than I had for months"; "I turned a door knob today with this hand"; or "I reached the switch today to turn on the light for the first time," and most joyous news of all, "The pain is all gone." When the disturbing factors have been found and corrected by the attending physician, and the technician in Physiotherapy has done her part, the patient may expect not only relief but cure.

The plan of concentrated baking at the larger nerve trunks, together with support and warmth followed by graduated gentle stretchings and in a very few selected cases sedative diathermy, seems so simple that it may not recommend itself to all, but those who persist in this treatment with patient after patient will of necessity be convinced by the patients themselves.

CORRELATION OF PHYSIOTHERAPY TO OCCUPATIONAL THERAPY*

By MARTHA R. EMIG

Occupational therapy is any activity, mental or physical, definitely prescribed and guided for the distinct purpose of contributing to and hastening recovery from disease or injury.

In my experience I find there is no fine line of demarkation indicating where Physiotherapy and Occupational Therapy begins and the other ends.

The changing character of treatment of sick people has brought into use every feature of activity, mental, physical and manual, that may help toward capitalizing the remaining abilities of a patient rather than his disabilities.

Though Physiotherapy plays a very important part in the program of certain types of cases, there should be the closest unity of work, because when the passive activity decreases, the occupational should increase. The two should work hand in hand with the complete and perfect objective of contributing everything humanly possible to the welfare of the individual patient.

For your consideration I will illustrate some cases.

A patient with gunshot wound of left elbow and forearm, with resulting compound comminuted fracture of ulna, with limitation of motion was assigned to rug shop for flexion and extension of thumb, fingers, wrist and elbow, with caution to avoid elbow fatigue. He was started making Turkish rugs, as the tying of the knots involved finger and wrist flexion, slight extension and very little elbow movement. He completed a Turkish rug, and made one with the more intricate Persian knot, which necessitated more elbow flexion extension. In addition to greater technical skill, he gained 20.5° voluntary extension of the distal joint of the fourth finger.

Another patient with partial ankylosis of wrist, due to infectious arthritis, began curative work in the ward with rake knitting for flexion of fingers, thumb and wrist of left hand. At first she could scarcely grasp the rake, but gradually voluntary movement increased. After this improved condition she was sent to the curative work shop, where she did carving for block printing and using a mallet, the handle of which was modeled with dental compound to meet her grip. As her grip improved, the amount of the compound was reduced. In addition to doing very good work, she strengthened her grip until she could grasp small objects.

Physiotherapy and massage increases nutrition and helps to prepare these muscles and joints for treatment by the occupational

*Read before the seventh annual convention of the A. P. A., Minneapolis, 1928.

therapist, and I might cite a number of cases where seemingly hopeless cripples have been brought to the state of being able to use these muscles by the production of baskets, weaving, woodwork, etc.

Take for instance our disturbed mental cases. The Physiotherapist applies hydrotherapy as a sedative; just so will the occupational therapist give sedative occupations made up of subdued color harmonies, textures, long jobs of many repetitions of which all are sedative and vice versa for stimulating occupations.

The occupational therapist does not depend entirely upon limited joint motion or muscle power to determine her effort, that all muscle groups are in balance.

In occupational therapy you believe that the thoughtful physician is going to realize what this knowledge of work in muscle group means and that it is not exercise unless indicated by him. Muscle balance represents the effort the occupational therapist puts into the work.

All remedial exercises are based on a series of specific voluntary movements involved in ordinary routine activities in life.

METHOD OF MEASURING MOVEMENT OR MOTION

As soon as the occupational prescription has been written, the range of motion of each joint is measured by instruments which record in degrees the amount of flexion extension, etc. These degrees are plotted on charts, a weekly record, and curve is drawn, thus showing accurately whether the motion is increasing or decreasing. Muscle strength is recorded in the same way with scales.

If the occupation is changed, the chart will show its effects. They also show general condition, fatigue and nerves.

METHOD OF PRODUCING MOTION

Jig saws and treadle looms will give leg and foot motion. For children, tricycles, kiddie cars and velocipedes, which are as much occupational for children as sewing and basketing are for adults. We believe any avocation or vocation is occupational therapy. For hands, arms, and shoulders, we use knotting, basketry, weaving, knitting, small and large looms, coordination and joint motion being the prime objective and each chosen to suit the individual need. It is surprising to see the improvement which only a few minutes of work a day will accomplish if correctly applied. Time and infinite patience is essential but the results are permanent in most cases.

METHOD OF INCREASING MOTION

Work is graded, as I have said, by the aid of charts and step by step it is increased in time and severity until the desired results are obtained. From occupational therapy we carry on to rehabili-

tation many of our cases where functional restoration is so limited as to prevent the disabled person continuing with the former occupation. They are retrained through the state department of re-education. Some cases we retrain in our work shop, the majority of these for sheltered employment. Many times we refer our cases to the state department for retraining in vocations in other institutions, which means putting the handicapped back on the job.

Our results are not all due to occupational therapy alone. Physiotherapy, hydrotherapy massage, and heliotherapy, as well as the most careful medical care, are constantly used; nevertheless, normal activity or special muscle training is largely secured through regular occupational therapy.

It is interesting to know that the Physiotherapy and Occupational Therapy department of St. Mary's Hospital at the Mayo Clinic are together, and I feel it should be so in every hospital.

CHAPTER DIRECTORY AND NEWS

AMERICAN PHYSIOTHERAPY ASSOCIATION, Cleveland Chapter

President, Miss Rachel Farnsworth, The Commodore.
Secretary, Mrs. W. A. Cleaveland, 15336 Welton Drive.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Chicago Chapter

President, Miss Cora A. Hauser, 743 Cornelia Ave.
Secretary, Miss Civilla L. Kirk, Wesley Hospital.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Minnesota Chapter

President, Miss Sara E. Kollman, Gillette State Hospital, St. Paul.
Secretary, Miss Martha E. Hindman, Miller Clinic, Hamm Bldg., St. Paul.

AMERICAN PHYSIOTHERAPY ASSOCIATION, New York Chapter

President, Mrs. J. C. Mahon, 228 Bragaw St., Long Island City.
Secretary, Miss Kathryn Park, 614 Park Ave., Plainfield, N. J.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Oregon Chapter

President, Miss Ruth Babb, 100 F Building, Portland.
Secretary, Miss Evea Applegate, 143 Floral Avenue, Portland.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Rhode Island Chapter

President, Miss Dorothy Hislop, 133 Waterman Street, Providence.
Secretary, Mrs. Helen Harrison, 532 Broad Street, Providence.

DISTRICT OF COLUMBIA PHYSIOTHERAPY ASSOCIATION

President, Miss Mia Donner, Washington Medical Building.
Secretary, Miss Emma Vogel, Walter Reed General Hospital.

MASSACHUSETTS PHYSIOTHERAPY ASSOCIATION, INC.

President, Miss Edith Monroe, Students House, 9 Fenway, Boston.
Secretary, Miss Constance K. Greene, 23 Burpee Road, Swampscott.

PENNSYLVANIA PHYSIOTHERAPY ASSOCIATION, INC.

President, Mr. William H. Jones, 2515 West Lehigh Ave., Philadelphia.
Secretary, Miss Louise Jetter, 17 East Style St., Collingswood, N. J.

WASHINGTON PHYSIOTHERAPY ASSOCIATION

President, Miss Elsie Child, 311 Douglas Building, Seattle.
Secretary, Miss Signe Fossom, Virginia Mason Hospital, Seattle.

AMERICAN PHYSIOTHERAPY ASSOCIATION

Application for Membership

NAME .....

ADDRESS .....

PRESENT OCCUPATION .....

Send Application to the Secretary
Charlotte H. Ballard, St. Francis Hospital,
Bush and Hyde Sts., San Francisco, Calif.

OFFICIAL PIN

The *Official Pin* is now ready. Get your purchase card from the treasurer and send to Filene's Sons Co., Boston, Mass. Price $3.00. The pin is small and made up in blue and gold and the same design as in the arm emblem—very pretty. The arm emblems are not selling well at all, but we hope you all will order pins so that Filene's may not lose money on the courtesy they have extended to us.

LIST OF PHYSIOTHERAPY SCHOOLS APPROVED BY THE AMERICAN PHYSIOTHERAPY ASSOCIATION, JANUARY, 1928

The New Haven School of Physiotherapy, 303 Whitney Ave., New Haven, Conn., Harry Eaton Stewart, M. D.

Philadelphia Orthopedic Hospital, 17th and Summer Sts., Philadelphia, Pa., Miss Jane M. Farrell.

Children's Hospital, Sunset and Vermont Aves., Los Angeles, Calif., Miss L. H. Graham.

Northwestern Medical School, 303 East Chicago Ave., Chicago, Ill., John S. Coulter, M. D.

Harvard Medical School, Longwood Ave., Boston, Mass. (Post Graduate Courses), Course No. 441, Miss Janet B. Merrill; Course No. 442, Miss Mary McMillan.

Battle Creek Sanitarium, Battle Creek, Mich. (Post Graduate Course), Mrs. Mary Staines Foy, R. N.

Walter Reed General Hospital, Washington, D. C., Miss Emma Vogel.

Why the Mercury-Vapor Arc in Quartz for Ultraviolet Therapy?

...sider These Points

...sistent operation, con-...ting to accurate dosage ...urrent.

...ater output, means a ...n dosage in 1/3 to 1/5 ...sual time.

...operate continuously ...y without attention.

...nliness, no sparks or ...hazards.

...of current consumption ...gible.

...pecial wiring—connect ...dinary lamp socket.

...re are a number of other ...ent facts of interest to ...physician or institution ...mplating the installa... ...of ultraviolet equip... ...Write for full infor...n.

TWENTY-FIVE years ago the Victor X-Ray Corporation announced to the medical profession an open type carbon arc lamp for therapeutic purposes, followed a few years later by another and larger model, "The Sun," the clinical application of which was stimulated by Dr. Finsen of Copenhagen.

A great deal of valuable experience was thus obtained, but even though clinical results reported by Finsen were generally reproduced, the adoption of this source of ultraviolet was limited.

Although the carbon arc type of lamp can be manufactured at a low cost and is consequently more readily sold on a low price basis, the Victor X-Ray Corporation abandoned it with the advent of the *Uviarc*, which produces a mercury-vapor arc in a quartz tube having a tungsten anode. The primary object of this development was to produce a quartz vessel without a ground joint and with metallic lead-in wires sealed in a vacuum tight manner, so as to permit the use of higher wattage input with a consequently greater ultraviolet output.

The scientific advances in ultraviolet therapy and its widespread adoption in the leading clinics in recent years are coincident with the availability of the mercury-vapor arc in quartz.

Physical Therapy Department of

VICTOR X-RAY CORPORATION

Manufacturers of the Coolidge Tube and complete line of X-Ray Apparatus — ***Physical Therapy Apparatus, Electrocardiographs, and other Specialties***

2012 Jackson Boulevard *Branches in all Principal Cities* **Chicago, Ill., U.S.A.**

A GENERAL ELECTRIC ORGANIZATION

Northwestern University Medical School
Chicago, Illinois

Physical Therapy Course

This course is designed for Graduates of Physical Education and Graduate Nurses.

The course will be given from October 1, 1928, to May 31, 1929.

The course will be given at the Northwestern University Medical School and in affiliated hospitals.

Special emphasis will be placed on Anatomy, in which there will be lectures, dissection and quizzes. Special instruction and many hours of practical work will be given in massage, muscle training and corrective exercises, especially in the treatment of the various forms of paralysis, spinal curvatures, faulty postures, fractures, and other industrial accidents. Instruction and practical work will also be given in Electrotherapy, Heliotherapy, Artificial Light Therapy, Hydrotherapy, Thermotherapy, Occupational Therapy, Physical Therapy Department Administration, and Administration of Work for the Handicapped.

The course will be under the direction of John S. Coulter, M.D., Assistant Professor of Physical Therapy, and Miss Gertrude Beard.

Fees: $200.00.

Application should be made to the
Dean of Northwestern University Medical School
303 East Chicago Avenue, Chicago, Ill.

Physiotherapy emblems attached free to

NURSES' UNIFORMS

purchased from

Filene's

HEADQUARTERS FOR NURSES' UNIFORMS

Mail or telephone orders promptly filled for these two leaders:

Burton's Irish Poplin Uniforms
$5.75, 3 for $16

Indian Head Uniforms
$3.75, 3 for $10

WM. FILENE'S SONS COMPANY **Boston, Mass.**